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ABSTRACT

These student materials in a two-volume format for a secondary-postsecondary level course in food service/cook comprise one of a number of military-developed curriculum packages selected for adaptation to vocational instruction and curriculum development in a civilian setting. The stated purpose for the individualized, self-paced course is to teach the tasks of the apprentice cook. The course is recommended for use in providing supplementary exercises for students in food service training. Volume 1 (two chapters) covers sanitation (food service standards, personal hygiene, communicable diseases, general sanitation measures, and insect and rodent control) and operation and maintenance of food service equipment (portable equipment and fixed equipment). Volume 2 (one chapter) discusses principles of cookery (weighing and measuring; common cooking terms; seasoning agents; cook's worksheet; identification of meats, seafood, poultry; cooking methods; meat cookery factors; types and grades of meat; vegetables and fruit; garnishing food; quick bread; and basic serving rules and procedures). Each chapter is organized around criterion learning objectives with reading and criterion test items. Volume review exercises are provided, but no answers are given. (YLB)

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MILITARY CURRICULUM MATERIALS

The military-developed curriculum materials in this course package were selected by the National Center for Research in Vocational Education Military Curriculum Project for dissemination to the six regional Curriculum Coordination Centers and other instructional materials agencies. The purpose of disseminating these courses was to make curriculum materials developed by the military more accessible to vocational educators in the civilian setting.

The course materials were acquired, evaluated by project staff and practitioners in the field, and prepared for dissemination. Materials which were specific to the military were deleted, copyrighted materials were either omitted or approval for their use was obtained. These course packages contain curriculum resource materials which can be adapted to support vocational instruction and curriculum development.

The National Center Mission Statement

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Military Curriculum Materials for Vocational and Technical Education

Information and Field Services Division

The National Center for Research in Vocational Education

Military Curriculum Materials Dissemination Is . . .

an activity to increase the accessibility of military-developed curriculum materials to vocational and technical educators.

This project, funded by the U.S. Office of Education, includes the identification and acquisition of curriculum materials in print form from the Coast Guard, Air Force, Army, Marine Corps and Navy.

Access to military curriculum materials is provided through a "Joint Memorandum of Understanding" between the U.S. Office of Education and the Department of Defense.

The acquired materials are reviewed by staff and subject matter specialists, and courses deemed applicable to vocational and technical education are selected for dissemination.

The National Center for Research in Vocational Education is the U.S. Office of Education's designated representative to acquire the materials and conduct the project activities.

Project Staff:

Wesley E. Budke, Ph.D., Director
National Center Clearinghouse

Shirley A. Chase, Ph.D.
Project Director

What Materials Are Available?

One hundred twenty courses on microfiche (thirteen in paper form) and descriptions of each have been provided to the vocational Curriculum Coordination Centers and other instructional materials agencies for dissemination.

Course materials include programmed instruction, curriculum outlines, instructor guides, student workbooks and technical manuals.

The 120 courses represent the following sixteen vocational subject areas:

- Agriculture
- Aviation
- Building & Construction Trades
- Clerical Occupations
- Communications
- Drafting
- Electronics
- Engine Mechanics
- Food Service
- Health
- Heating & Air Conditioning
- Machine Shop
- Management & Supervision
- Meteorology & Navigation
- Photography
- Public Service

The number of courses and the subject areas represented will expand as additional materials with application to vocational and technical education are identified and selected for dissemination.

How Can These Materials Be Obtained?

Contact the Curriculum Coordination Center in your region for information on obtaining materials (e.g., availability and cost). They will respond to your request directly or refer you to an instructional materials agency closer to you.

CURRICULUM COORDINATION CENTERS

EAST CENTRAL
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Springfield, IL 62777
217/782-0759

NORTHWEST
William Daniels
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APPRENTICE COOK

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APPRENTICE COOK

Correspondence Course 9-2

Developed by:
United States Air Force

Development and Review Dates:
Unknown

Occupational Area:
Food Services

Cost: $1.50

Print Pages: 70

Availability:
Military Curriculum Project, The Center for Vocational Education, 1960 Kenny Rd., Columbus, OH 43210

Suggested Background:
None

Target Audiences:
Grades 10-adult

Organization of Materials:
Objectives, readings, criterion test items with answers, and volume review exercises

Type of Instruction:
Individualized, self-paced

Type of Materials:			No. of Pages:	Average Completion Time:
Volume 1	–	*Role of the Apprentice Cook*	41	Flexible
Volume 2	–	*Food Preparation, Cooking, and Serving*	25	Flexible

Supplementary Materials Required:
None

THE CENTER FOR VOCATIONAL EDUCATION THE OHIO STATE UNIVERSITY

Expires July 1, 1978

Course Description:

This course consists of two volumes to teach the tasks of Apprentice (semi-skilled) Cook. These tasks cover sanitation, preparation, and serving. Some chapters were deleted because of extensive use of military specific procedures, organization or forms.

Volume 1 – *Role of the Apprentice Cook*, contains three chapters, chapter 1 was deleted.

Chapter 2 – *Sanitation* discusses food service standards, personal hygiene, communicable diseases, general sanitation measures, and insect and rodent control.

Chapter 3 – *Operation and Maintenance of Food Service Equipment* covers portable equipment and fixed equipment such as dishwashing machines, steamtables, steam-jacketed kettles, vertical steamers, meat slicing machines, roasting ovens, vertical food mixing machines, coffee makers, vegetable peelers, and tilt grills.

Volume 2 – *Food Preparation, Cooking, and Serving* contains three chapters. Two were deleted because they dealt with Air Force in-flight feeding and accounting systems.

Chapter 1 – *Principles of Cookery* explains weighing and measuring; common cooking terms; seasoning agents—herbs and spices; the cook's worksheet; identification of meats, seafood, and poultry; cooking methods; meat cookery factors; types and grades of meat; vegetables and fruit; garnishing food; quick bread; and basic serving rules and procedures.

Each chapter is organized around criterion learning objectives with readings and criterion test items. The answers to the items are referenced to the objectives. Volume review exercises are provided, but no answers are available. This course is designed for student self-study and evaluation. It would be best utilized to provide supplementary exercises for students in food service training.

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CDC 62230

APPRENTICE COOK

(AFSC 62230)

Volume 1

Role of the Apprentice Cook

9-2

Extension Course Institute

Air University

11

4

PREPARED BY
DEPARTMENT OF LOGISTICS TRAINING
USAF SCHOOL OF APPLIED AEROSPACE SCIENCES
LOWRY AFB, COLORADO

EXTENSION COURSE INSTITUTE, GUNTER AIR FORCE STATION, ALABAMA

THIS PUBLICATION HAS BEEN REVIEWED AND APPROVED BY COMPETENT PERSONNEL OF THE PREPARING COMMAND IN ACCORDANCE WITH CURRENT DIRECTIVES ON DOCTRINE, POLICY, ESSENTIALITY, PROPRIETY, AND QUALITY.

Preface

AS YOU KNOW, the mission of the Air Force is the defense of our Nation. How well the Air Force accomplishes its mission depends to a large degree upon the attitudes of its personnel toward their jobs and organizations. Attitudes, working conditions, and personal needs (clothing, housing, and dining facilities) go together to help form a basis for attitudes. Because of local conditions, some adverse factors possibly cannot be completely corrected; but an organization that supplies good dining facilities for its people—that is, one that supplies them with tasty and nourishing food—is characterized by efficiency and high morale. So if it is an opportunity for service to the Air Force that interests you, look no further. Few career fields offer greater opportunities than the food service field.

In Chapter 1 you will be introduced to the Food Service Career Field, the career field structure, career ladder advancement, and duties and responsibilities of food service personnel. We will also cover communication security and publications pertaining to the food service field.

We will discuss sanitation and personal hygiene standards in Chapter 2. Communicable diseases, their causes, and preventive measures are also covered. Cleaning objectives, materials, and methods are explained. Methods used to control insects and rodents as they pertain to the dining hall are also discussed.

Chapter 3 of this volume covers dining hall equipment. The operation and maintenance of the dining hall equipment is discussed. Also the safety procedures that apply to the operation, maintenance, and cleaning of the individual pieces of equipment are emphasized.

If you have questions on the accuracy or currency of the subject matter of this text, or recommendations for its improvement, send them to Tech Tng Cen (TTOC), Lowry AFB CO 80230.

If you have questions on course enrollment or administration, or on any of ECI's instructional aids (Your Key to Career Development, Study Reference Guides, Behavorial Objective Exercises, Volume Review Exercise, and Course Examination) contact your education officer, training officer, or NCO, as appropriate. If he can't answer your questions, send them to ECI. Gunter AFS AL 36118, preferably on ECI Form 17, Student Request for Assistance.

This volume is valued at 12 hours (4 points).

Material in this volume is technically accurate, adequate, and current as of June 1973.

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MODIFICATIONS

Chapter 1 of this publication has (have) been deleted in adapting this material for inclusion in the "Trial Implementation of a Model System to Provide Military Curriculum Materials for Use in Vocational and Technical Education." Deleted material involves extensive use of military forms, procedures, systems, etc. and was not considered appropriate for use in vocational and technical education.

CHAPTER 2

Sanitation

Sanitation is the science and practice of effecting healthful and clean conditions. However, your supervisor will probably refer to sanitation as simply a matter of reaching and maintaining a state of cleanliness. You will soon discover that sanitation is more than a measure, procedure, or condition. It is a way of life.

It will not take you long to realize how your supervisor feels about sanitation. You may believe that thorough and constant cleaning operations represent an unreasonable decision on the part of your supervisor. This is not so; your supervisor knows the sanitation standards and is required to see that the health and welfare of all persons who eat the food he handles or prepares are protected.

This chapter introduces the subject of sanitation as it pertains to food service. We will discuss the importance of personal hygiene, communicable diseases, and control measures to combat these diseases. We will also discuss some of the common cleaning problems, precautions, materials, and procedures. Each facility has its own peculiar problems of sanitation and it is impossible to anticipate them all.

Therefore, if you find a need for more information that is not contained in this chapter, check with your trainer or supervisor.

2-1. Food Service Standards

From your own personal experiences, you will agree that a clean, wholesome atmosphere and environment are necessary to a successful food service operation. Even if we were to discount entirely the harmful effects upon health that a lack of sanitation creates, we would still be faced with the fact that no one enjoys food prepared and served in unclean surroundings. The fresh, distinctive flavor of food simply cannot be maintained unless the food is handled and prepared according to high standards of sanitation.

009. Identify the manual that establishes sanitation standards and state what personnel assist food service personnel on matters relating to sanitation.

Nowhere is the application of established rules and standards of sanitation more important than in our food service activities. Because of its importance, both to the health and to morale, sanitation is governed by regulations and is measured against definite standards. Each Air Force commander is responsible for enforcing these regulations. Medical service personnel supervise the various activities in matters of sanitation, and they advise the commander as to the effectiveness of the sanitation procedures employed and of problems that may exist. Food service personnel work closely with medical service personnel on matters relating to sanitation. Each section supervisor should actively seek the advice and recommendations of qualified medical personnel. With the commander's approval, the food service supervisor carries out the practices and procedures set down by the medical department personnel who provide for the health and welfare of those who use the facility.

While Air Force regulations place certain responsibilities for sanitation upon certain offices and persons, the fact remains that we all have individual responsibilities in that connection. To the people with whom we have contact, we have an obligation to devote proper attention to cleanliness and hygiene, both as they pertain to our person as well as to our work areas and quarters. Anyone person who neglects his responsibility for sanitation can endanger the health and the lives of airmen who depend upon food service personnel for providing wholesome food served in clean, healthful surroundings.

The authority for establishing sanitation standards in Air Force food service facilities, as well as the responsibility for their enforcement is outlined in AFM 163–8, *Food Service Sanitation.* A copy of this manual should be on file in all food service activities. You will find the information provided by this manual to be helpful as a source of reference when sanitation problems are encountered.

Exercises:

1. The authority for establishing sanitation standards in Air Force food service facilities is outlined in AFM _____

2. Food service personnel work closely with _____ _____ on matters relating to sanitation.

3. Because of its importance both to the health and to morale, sanitation is governed by regulation and is measured against _____ _____

2-2. Personal Hygiene

Sanitation, like charity, begins at home. If a food service worker is to effectively carry out the established sanitation program in his facility, he must give first consideration to the cleanliness of his own body. There is no place in the food service organization for a person having a casual attitude toward personal cleanliness.

010. List the proper precautions necessary for the food service worker to protect his health and the health of others.

Personal hygiene begins with a "soap and water" attitude. Every person who is directly involved in any food handling operations is expected to use soap and water as generously in keeping himself clean as he would keeping his own eating utensils clean. One shower daily is considered a minimum requirement; there may be times when two or more are needed.

It is well to recognize the fact that our skins are naturally covered with staphylococci bacteria. They are a major source of food poisoning. If, through lack of proper attention, these bacteria are permitted to multiply, a point may be reached at which there is a serious danger of contamination of food that is handled. The best protection against such multiplication is soap and water. The hands, particularly, should be washed frequently. They should be washed immediately before going on duty, after every visit to the latrine, after using a handkerchief, and after each contact with anything that might constitute a source of germs. Each hand-washing must include plenty of soap—simply running water over the hands is not sufficient.

It is well to note that sanitation and hygiene involve both physical and mental factors. Food service personnel must not only be clean—they must look clean. If you have ever eaten a meal in a "greasy spoon" restaurant, you will be doubly appreciative of the need for a clean, neat appearance presented by cooks and food servers. There is nothing worse than the sight of a soiled apron to dull the appetite.

A person who takes pride in his profession also takes pride in his appearance, and makes sure that his personal habits and mannerisms are socially acceptable.

A pilot making ready for takeoff follows a definite checklist to insure that his aircraft is in all respects prepared for flight. Similarly, food service personnel will do well to honor a checklist when preparing for their duties and responsibilities. The following personal hygiene rules are presented as such a checklist:

a. Keep fingernails short and clean. A nail brush should be available at each sink in latrines. Dirty fingernails not only detract from your sanitary appearance but also carry collected germs that can pass on to the food you prepare or serve.

b. Bathe daily, especially before reporting for duty. Foul body odor does not improve appetizing food aromas.

c. Change socks and undergarments daily. Perspiration—soaked socks and garments give off an offensive odor.

d. Brush your teeth a minimum of twice daily. Unbrushed teeth lead to stains and cavities, both of which have a tendency to injure your health. This unclean condition also leads to bad breath.

e. Visit your barber or hairdresser at regular intervals and have your hair cut to the required military standards.

f. Shampoo your hair at frequent intervals. A person with dandruff or other scalp disorders does not present a pleasing appearance and may cause food to become contaminated.

g. A good, close, clean shave before reporting for duty is a standard prerequisite.

h. To prevent hair from falling into food during preparation, inspection, or serving, all male personnel are required to wear clean white hats. Female personnel must wear hairnets.

i. All personnel must report for duty in freshly laundered white garments that cover the armpits.

j. Your shoes should be polished and in good repair. Polished shoes add to your personal appearance. Have two pairs of work shoes and wear them alternately. This prolongs the life of your

shoes and reduces the possibility of bad odor or possible foot ailments.

k. To prevent spreading of respiratory germs, coughs and sneezes should be checked with a handkerchief, or more preferably with a disposable tissue. When coughing and sneezing spells are persistent, you should report on sick call for prompt medical attention.

l. During the performance of duty, your face is the largest area of your body exposed and accessible to the collection of germs. Therefore, do not touch your face or mouth with your hands while handling food.

m. Do not smoke in areas where food is being prepared or served. Tobacco ashes may fall into food, and tobacco odors will taint the appetizing aromas of food.

n. Whenever possible, keep your hands from making direct contact with food. Use forks, spoons, or tongs when preparing or serving food.

o. When sampling foods during preparation for palatability and flavor, use a clean fork, spoon, or other suitable utensil for each sampling.

p. Cups, glasses, plates, and other containers used in the consumption or preparation of foods should be handled by the outside areas or edges only. Touching the interior of these receptacles with the fingers produces smudges and gives these items a soiled appearance. Furthermore, it is an unsanitary practice that increases the possibility of spreading germs among food consumers.

q. Wrist watches and rings (except wedding rings) are to be removed prior to and during food preparation and serving.

r. Get prompt medical attention for all cuts and scratches. Anything beyond superficial cuts and scratches should be treated by qualified medical personnel.

Bear in mind as a food service member, your general health and appearance are not merely a personal matter. They are of the utmost concern to the people you work with and to those personnel who eat the foods you prepare.

Exercises:

1. Personal hygiene begins with a _____ _____ attitude.

2. It is well to note that sanitation and hygiene involves both _____ and _____ factors.

3. List ten personal hygiene rules that pertain to food service personnel.

   a.

   b.

   c.

   d.

   e.

   f.

   g.

   h.

   i.

   j.

2-3. Communicable Diseases

There are diseases that may be spread from person to person and from animals to humans, either through direct contact or through close association. These diseases are known as communicable diseases, that is, given or transferred by one person to another. There are three common types of such diseases against which you must be constantly on guard: respiratory, intestinal, and insect-borne.

011. Identify common types of communicable diseases.

Respiratory diseases are those that relate to the lungs and air passages. The spreading of such diseases is usually a result of discharges from the nose, mouth, throat, or lungs. Common colds, scarlet fever, and tuberculosis are examples of respiratory diseases that are communicable from one person to another.

Intestinal diseases are those that affect the digestive tract or system. Examples are typhoid fever and dysentery. Such diseases are spread by infected food handlers, flies and other insects, rodents and by otherwise contaminated food and water supplies.

Insect-borne diseases are usually considered to be those which are transmitted by bloodsucking insects. An example is malaria, which is spread by the mosquito.

There are three links in the chain for the spread of communicable diseases—the source, the means of transmission, and the susceptible person. Control measures may be directed against all three. This involves isolating, physical inspection, and quarantine. For certain reasons some diseases may require inoculation.

Exercises:

1. What are the three common types of communicable diseases?

2. _____ diseases are those that relate to the lungs and air passages.

3. _____ diseases are those which affect the digestive track or system.

4. _____ diseases are usually considered to be those which are transmitted by bloodsucking insects.

2-4. Disease Control Measures

One of the most important responsibilities in food service operations is preventing the spread of disease. As a matter of fact, this responsibility is the primary purpose of the entire sanitation program and, in this connection, your own good health is of vital importance.

012. State the measures used in food service establishments for controlling disease.

Good health depends upon many factors, most of which are to some degree controllable. Proper rest, plenty of sleep, regular hours, good eating habits, and proper exercise are all necessary to a healthy body and an alert mind.

Supervisor's Inspection. The supervisor's inspection, which is conducted at the beginning of each shift, involves both permanent and temporary food handlers. Permanent food handlers include all personnel, military and civilian, who are permanently assigned to duties involving the handling, processing, preparation, or serving of food. Included are cooks, cooks' helpers, bakers, and food service supervisors. You might go a step further and say that this group also includes all persons who handle or serve food or beverages of any kind (other than in unbroken packages). This group also includes those who handle equipment or utensils necessary for the preparation and serving of food as a part of their regular routine.

The temporary food handler group includes those persons who are assigned to duties in food service activities for relatively short periods of time, and whose duties do not involve the handling of prepared food or food items served after subsequent cooking or sterilization. Any person whose state of health is not up to par should not be permitted to work. If you have a cold, a sore throat, a persistent cough, or any other form of illness, you should not be permitted to work, because you can spread disease through contaminating the food you handle. You should not be handling food if you have skin diseases or disorders, or a cut or sore of other than a superficial nature, you should not wait, however, for your supervisor to find you unfit for duty. If you are ill or are suffering from any injury or any kind of disorder, report that fact promptly to your supervisor. Normally, you will be instructed to report immediately to the hospital.

Food service personnel, like other nonmedically trained personnel, are prohibited from the self-treatment of wounds or diseases. Medical treatment, regardless of the extent or nature, is strictly a job for the medics. In addition to reporting for sick call, you will also be expected to report promptly for the appropriate treatment of cuts, burns, stains, and other injuries. You are never to handle food unless your physical condition is up to par, or in the case of minor ailments, unless your continued presence and activity in the food service establishment are approved by competent authorities.

Physical Examination. In addition to the supervisor's inspection, all permanent food handlers must have a complete physical examination prior to entering upon duties involving the handling

and processing of food and food service equipment. Since you are classed as a permanent food handler, you will be issued a medical certificate that is posted or kept on file in the facility where you work. Physical examinations are required periodically thereafter.

Officers or supervisors in charge of food service facilities are required to make written reports to the base veterinarian, naming all permanent food handlers under their control. The base veterinarian takes the necessary steps to have the personnel examined and to keep a permanent record of the findings. Results of the examinations are promptly reported to the organization commander, and personnel found unfit for duty are relieved at once.

Medical Services Inspection. In addition to your yearly food handlers' examination and the usual daily inspections, your section will be inspected periodically by a member of the Base Veterinary Section. This inspection is unannounced and usually takes place during meal preparation, meal serving, dishwashing, or performance of other sanitation duties. The inspector observes personal appearance, techniques used in food preparation, area and equipment cleanliness, hand-washing facilities, and the temperatures of foods being served, wash and rinse waters in dishwashing machines, ice boxes and freezers, et cetera. This inspection can also include taking unannounced finger cultures of personnel on duty and swab cultures of plates, cups, glasses, eating and serving utensils, and vessels used in food preparation and serving.

Exercises:

1. What are the three measures used to control diseases?

   a.

   b.

   c.

2. What two types of inspections are conducted before a worker can perform duty in a food service establishment.

   a. _____ b. _____

3. List three purposes for an inspection by the base veterinarian.

   a.

   b.

   c.

2-5. Cleaning agents

Good sanitation is nothing more than good housekeeping, and good housekeeping is little more than the application of common sense.

In the Air Force, everyone has certain housekeeping responsibilities. Each individual is required to maintain certain standards of order and cleanliness in his living quarters and to observe certain proprieties in conduct. If this were not true, a number of health hazards would develop and would lower the efficiency of the Air Force.

013. Identify the categories of dirt and describe the cleaning agents used in the removal of this dirt.

The aim of any cleaning operation is the removal of dirt. In terms of cleaning operations, dirt falls into three categories: (1) dirt that is soluble in water, (2) dirt that is insoluble in water, and (3) dirt that produces a stain.

Dirt that is soluble in water requires only water for its removal. Water alone, of course, is ineffective against germs unless it is boiling hot.

Dirt that is insoluble in water can be washed away only by using a solvent or an emulsifying agent, something that will suspend the dirt in water. Soap in a solution is a combination of both, so it is the most widely used cleaning agent. Soap extends the dissolving action of water and is the best known agent for suspending grease and dust in water. Detergents are also popular as cleaning agents and can effectively take the place of soap.

A stain is caused by dirt that, if not removed immediately, will change the color of the surface upon which it exists. Prompt attention must be given to the removal of stains to prevent permanent damage to the surface affected.

Cleaning agents commonly used in food service operations may be divided into two general classes: (1) those emulsifying dirt with water and (2) those removing dirt by abrasive action.

Soap is an agent that cleans as a result of an alkali action upon fats or oils. It is usually made up of fats or oils combined with an alkali of sodium and has an excess of free alkali. The milder toilet and hand soaps, on the other hand, are usually made with palm, coconut, or cottonseed oils combined with either a sodium or potassium type alkali. Liquid soap is similar to bar soap except that it is in solution with water.

Detergents are cleansing or purging agents resembling soap in their ability to emulsify oils and to hold dirt in suspension. Detergents have to a large degree replaced soaps for the various cleaning operations in a food service establishment. The standard detergent for Air Force cleaning processes is known as all-purpose synthetic detergent cleaning compound. The standard detergent may be in powder, flake, liquid, or paste form. It contains no abrasives or fatty acid soap and is not irritating to the skin.

An alkali is a substance, such as potassium or sodium carbonate, having a characteristic acrid taste and the ability to neutralize acids. As you have already learned alkalis are essential ingredients in soap, but there are many cleaning operations in which alkalis alone are used. They have cleaning power beyond that of soap and are less expensive. The most objectionable feature of an alkali is its caustic action—a tendency to irritate and burn the skin. Alkalis do not produce suds, but they do soften the material that binds dirt to a surface.

Thorough rinsing is particularly important when the cleaning process has involved the use of an alkali. Surfaces that are not properly rinsed continue to be affected by the caustic action of the alkali, and damage may result. In general, alkalis should not be used on wood, linoleum, asphalt or rubber tile, or painted surfaces.

Some of the alkali cleaners in common use include trisodium phosphate, sodium bicarbonate, and borax.

An abrasive is a substance that, when rubbed on a surface, wears it away. An abrasive cleaner, therefore, is one that cleans by wearing away the dirt and, in the process, a part of the surface to which the dirt had clung. If all cleaning is done regularly and properly, there is little need in a food service establishment for abrasives.

Stains may be removed in three different ways: (1) by dissolving the substance causing the stain, (2) by using a bleaching agent, and (3) by absorbing the substance causing the stain. You may sometimes be faced with special stain problems such as the removal of water stains that appear on washbowls, urinals, and toilet bowls. Such stains may normally be prevented through the use of thorough daily cleanings with detergents. However, when stains do occur and normal detergents action proves inadequate, the use of a damp cloth and a soap-grit cake or scouring powder will ordinarily remove them.

For stain removal, never use any solution that has not been approved by your supervisor. There are some solutions that will remove stains, but they will also cause serious and permanent damage to the surfaces upon which they are used. It is far better to leave the stains than to remove them at the expense of removing the surface as well.

Cleaning agents tend to attack surfaces as well as the dirt or grime that may appear on those surfaces. For that reason, it is always well to consider that surfaces to be cleaned may be damaged in the cleaning process. Usually, there is a preferred cleaning agent and cleaning process for every cleaning operation.

In food service operations, we must be doubly alert to the need for good housekeeping. Housekeeping might, indeed, be called our watchword. Although adequate measures of sanitation are important to every facet ot Air Force life, they are imperative when they relate to food.

Exercises:

1. List the three categories of dirt.
   a.

   b.

   c.

2. Dirt that is soluble in water requires only _____ for its removal.

3. Dirt that is insoluble in water can be washed away only by using a _____ or an _____ _____.

4. What are the two classes of cleaning agents?
   a.

   b.

5. What are the different ways to remove stains?
   a.

   b.

   c.

2-6. General Sanitation Measures

High sanitation standards can be maintained only by careful attention to many details by all personnel from the supervisor down to the apprentice.

014. State the proper methods for cleaning floors and windows in a dining hall.

Floors. Floors in a food service establishment are subject to hard use, and they must be cleaned often and thoroughly. Proper cleaning serves a threefold purpose—it provides the necessary sanitation; it protects the floor against undue damage and wear caused by abrasive dirt; and it adds to the attractiveness of the facility.

The cleaning procedures outlined in the following paragraphs will aid in keeping floors in a good state of sanitation and preservation.

Sweeping. Dirt can be removed from floors by sweeping them with a brush or broom, or by the use of a dry or treated mop. Your supervisor will indicate what type of sweeping tool is best suited for the floor in your facility.

How often a given floor is to be swept depends upon the nature of the activity in the area, the amount of floor traffic, and various local conditions such as the weather, the nature of the soil, the condition of the grass around the building, and the adequacy of sidewalks. In any event, it usually requires no more than a casual inspection to determine whether a floor needs to be swept.

Mopping. Mopping removes dirt that has stuck to the floor surface and cannot be removed by sweeping. The two methods of mopping are: wet mopping and damp mopping.

Wet mopping involves the use of a mop to spread the soap or detergent solution and thus loosen and dissolve the dirt which clings to the floor. The mop is then used to pick up the washing solution, together with the loosened dirt. Also it removes any of the solution remaining by a rinse mopping.

Damp mopping is done with a mop that has been dipped into a clear water solution and has been wrung out. This type of mopping removes the dust from the floor. Damp mopping is especially useful in the kitchen where the use of a broom is prohibited. The reason the broom is prohibited is that it raises the dust, thus contaminating the food. Damp mopping removes the dust without spreading it around.

Waxing. Water emulsion wax is the most common type of wax used in the dining hall. It may be applied with either a lambswool applicator or with a clean mop. If you use the mop, make sure it is free of soap or dirt.

When applying the wax, evenly coat a small area at a time. Once you have started applying the wax in one direction, continue in the same direction. Do not rub the floor surface with the applicator after the wax has been applied.

Buffing. Wax should be thoroughly dry before buffing. The task of buffing is accomplished by a disk-type buffing machine or a cylinder-type machine with a tampico brush. A lambswool pad or a piece of blanket can be placed under the buffer to give a higher luster or to remove brush marks.

Window care. Few things detract more from the appearance of a food service establishment than dirty windows. How often the windows require cleaning depends upon many factors. The season, the local terrain, the extent to which the air is filled with smoke, the local climatic conditions, the local method of heating—all of these have a bearing upon the situation. We might say that the thorough cleaning of all windows on a once-per-month basis represents an average or typical requirement. In summary, however, if the windows look dirty, clean them.

For normal window cleaning, clear water is usually all that is needed. The water should be used sparingly and changed frequently. Water can be removed from the window panes with a chamois, a rubber squeege, or a clean, lint free cloth. For hard to clean windows, use a solution recommended by your supervisor or trainer.

Remember that maintaining a high standard of sanitation in food service facilities involves close attention to a great many details. It also involves the complete cooperation of all personnel assigned to the facility.

Exercises:

1. Proper cleaning of floors serves a threefold purpose. They are:
   a.

15

b.

c.

2. A good rule to follow in determining whether or not windows need cleaning is if windows look as if they need cleaning _____ _____.

3. What are the two methods of mopping?
a.

b.

2-7. Insect and Rodent Control

Another important factor in sanitation is the positive control of insects and rodents. No single measure will completely control the problems associated with the insects and rodents that infest food establishments. However, when we analyze all the elements of an insect and rodent control program, we find that this program is composed of two phases. The first phase includes the elimination of the breeding places, proper storage of refuse and garbage, and installation of screens to prevent the entry of pests into the food service facility. The second phase involves the use of chemicals or pesticides to control the pests that already infest the building or surrounding areas.

015. Identify the common types of insects and rodents and state the measues used to control these pests.

The common types of insects found in food establishments are the common housefly and the cockroach. There are other insects that cause problems, including several types of mites, beetles, bugs, and moths. These insects seldom cause disease, but cause the food products to be filthy and unwholesome. The following paragraphs will deal with only the two most common types.

Flies. The fly is one of the most common of all food infecting insects, and it is one of the filthiest. Because a fly is bred in filth and lives in filth, the elimination of filth will reduce the fly population. When a fly travels from filth to food, it carries in its stomach and on its feet millions of bacteria that are subsequently deposited on the food.

Flies can be controlled through proper sanitation and by eliminating their breeding areas, by proper screening of windows and doors, and by the use of chemicals to kill both adults and larvae (maggots). Elimination of all unnecessary sources of attraction for flies is essential in fly-control programs; therefore, the following control procedures must be given special attention by all food service personnel.

To eliminate breeding places of flies, all human waste, animal manure, and garbage must be covered, disposed of, or treated promptly and effectively. In any fly control program, strict observance of the following procedures is most important:

a. Have garbage picked up regularly at least once a day.

b. Keep garbage cans clean and covered with tightly fitting lids.

c. Keep grounds area around garbage racks free of refuse.

d. Clean exterior and interior grease traps regularly.

e. Protect foods by screening or refrigeration.

f. Clean latrines daily.

g. Screen all windows and doors.

Roaches. The roach is another creature that may thrive in food service installations if a continuous control program is not in effect. These insects secrete a foul liquid from their scent glands, an obnoxious saliva from their mouths, and leave a mucous-covered excreta behind in their travels.

Roaches thrive in the presence of food, warmth, and sheltered locations. They are most active at night, usually remaining concealed in cracks or other hiding places during the day. Their favorite breeding places are under steamtables, sinks, drains, and storeroom shelving. In their search of food, they contaminate exposed food, dining and work tables, utensils, and food preparation equipment. Roaches can and must be controlled; however, this task is not easily accomplished. Only a continuous control program will produce good results.

To control roaches, fill all cracks and crevices, eliminate all likely breeding places, keep food covered, and watch food deliveries so that no roaches are brought in.

Rodents. Such rodents as rats, mice, and ground squirrels not only act as reservoirs of disease but also destroy large amounts of Air Force food supplies. They damage buildings and equipment and cause fire losses by gnawing the insulation of electrical connections. A few of the rodent-borne diseases are endemic typus, bubonic plague, trichinosis, infectious jaundice, and various intestinal diseases. An effective rodent control program requires a knowledge of the species to be controlled. When evidence of rodent infestation is noticed contact your supervisor so that he can contact the Civil Engineers Insect and Rodent Control Section. This base activity will formulate an effective rodent control program and by following their advice, you can soon eliminate any rodent problem.

Actually, the control of rodents like the control of insects begins with good housekeeping.

Exercises:

1. What are the two phases for insect and rodent control programs?
   a.
   b.
2. What are the two most common types of insects found in food service establishments?
3. Name four ways to control flies.
4. Name three ways to control roaches.
5. An effective rodent control program requires a knowledge of the _____ to be controlled.

CHAPTER 3

Operation and Maintenance of Food Service Equipment

IN THIS CHAPTER we will discuss portable and fixed equipment, to include maintenance procedures and safety precautions in the use of this equipment. Your supervisor or trainer will furnish you with the necessary equipment operating procedures. Operating instructions may be in the form of a job proficiency guide (JPG), a designated section in AFM 146–8, *Operation and First Echelon Maintenance of Food Service Equipment,* or the manufacturer's instructions that are used as an operational checklist. You will note that we have given you a checklist—things to do and things to avoid doing. It is to your advantage that you learn the step-by-step procedures from the very beginning because most of your training will be conducted on these procedures. Never attempt to use a piece of mechanical equipment until you are basically familiar with its operating characteristics. When in doubt, seek the aid of your supervisor or trainer.

3-1. Portable Equipment

Included in types of portable equipment are handtools, utensils, utility or cleaning equipment.

016. Define the term 'handtools' and state the function of selected handtools and the safety precautions involved in their use.

Handtools are hand-operated items, including such necessary tools as knives, meat forks, scrapers, scoops, wire whips, and spatulas. Many handtools are issued in different sizes and shapes to meet the different uses for which they are designed. There are right and wrong ways to use and maintain each tool.

Knives are classed as cutting, scraping, or chopping tools. Like other bladed tools, the angle at which they are held and the cutting motion used increase or decrease their effectiveness. For example, after the first incision is made in carving meat, the angle at which the knife is held should never be altered or a jagged, uneven slice will result. Your trainer will explain and demonstrate knife handling techniques; however, only practice will enable you to attain and maintain proficiency.

Sharp knives are essential if you expect to do an efficient cutting job, you can keep knives sharp only if you use them properly. For example, do not use a knife to open a can.

How knives are cleaned has a lot to do with keeping them in good condition. They should be washed in warm, soapy water, rinsed, and dried before being placed in the storage area. Knives with wooden handles should not be allowed to stand in water. Water causes the wooden handles to swell and pull away from the shaft. Also, knives left in the water could cause serious injury to an unsuspecting person. An important safety measure to follow when handling a knife is: if a knife falls, stand back, let it fall, then pick it up.

Meat forks, basting spoons, spatulas, cake turners, egg whips, potato mashers, vegetable graters, butter cutters, sieves, collanders, and can openers are considered miscellaneous equipment. As with other tools there are right ways and wrong ways to use them. Handle them carefully and keep them clean. A brush and warm, soapy water will do the trick. Each piece should be carefully stored when it is not in use. Have a definite storage place for each item.

Exercises:

1. Define the term "handtools."

2. For what two reasons should knives not be left in water?

3. Name the materials used in keeping handtools clean.

4. When using a bladed tool, the angle held and the cutting motion used do what to change the value of the tool?

017. State the maintenance procedures of certain utensils and the safety precautions involved in their use.

Utensils are classed as small hand-operated pieces of equipment. You will work with kettles, measures, dippers, pots, and pans of all descriptions. To be in good working order, they must be cleaned thoroughly after each use and stored properly. To clean them, wash them in hot, soapy water. They should then be rinsed in clear, hot water and air-dried. Remove burned food or grease that sticks to a pan by putting water in the pan, covering it, and boiling hard for a few minutes. This will loosen the food particles that can then be removed with hot, soapy water and a stiff brush. Store pots and pans in a dry place, bottoms up. Do not put one utensil inside the other. A proper circulation of air is necessary to prevent rust.

Different kinds of metal require different care. Thus, it is important to be able to identify the various metals so that the proper cleaning agents and methods can be applied. Appropriate methods are as follows:

Stainless steel. Never use harsh scouring powders on stainless steel utensils.

Tin or plated metals. Hot, soapy water is the most effective cleaning agent for such items. Never use sharp tools in scraping food from tin or plated metals. Such mistreatment can remove the coating and expose the base metal. To remove burned food, boil the pan in a solution of baking soda until the residue is softened.

Aluminum. Aluminum utensils should not be cleaned with soda, lye, or highly caustic washing powders. Discoloration of the metal will result. Hot, soapy water will do the job perfectly.

When lifting or transporting heavy pots and pans, take time for safety. When pans are hot, use hot pads; when pans are heavy, have someone give you a hand.

Exercises:

1. What cleaning material should be avoided when cleaning tin or plated metals?

2. State the safety precautions that should be used when handling hot, heavy pans.

3. To prevent _____, a utensil should not be stored inside another.

018. Explain some of the operation and maintenance of selected cleaning equipment.

The wringer removes water from mops, and the bucket is the receptacle that catches and holds the water. The wringer consists of two long, round rollers that are set on a frame. The rollers are operated by two cogs on each side of the frame. Buckets may be different sizes and shapes.

Some scrub buckets have the wringer attached. To use this type, place the mop between the rollers and press your foot on the pedal causing the rollers to move in opposite directions, engaging the mop between them. Hold the other foot on the foothold attached to the bottom of the bucket. Lift the mop handle straight up and remove the mop. When using buckets and wringers that are separate, place the wringer on the bucket by engaging the slot on the wringer over the edge of the bucket. Place the mop between the rollers, turn the latch on the wringer toward the inner part of the bucket, grasp the handle, and turn the handle clockwise. Repeat the process until all water has been removed from the mop. Turn the latch on the wringer in the opposite direction to remove the mop.

Clean the wringer and bucket after each use by placing a small amount of warm, soapy water in the bucket and, holding the wringer over the bucket, scrub thoroughly with a brush. Then air dry.

Other cleaning equipment includes scrub brushes, mops, brooms, and squeegees. The brushes vary in size and shape depending on their purpose. To keep brushes, mops, brooms, and squeegees in good condition, clean them thoroughly after each use and store them properly. To clean brushes, mops, and squeegees, wash them in warm, soapy water; then rinse in clear, hot water and air dry.

Exercises:

1. Explain the operation of scrub bucket with wringer.

2. What are the procedures for cleaning a squeegee?

3-2. Fixed Equipment

Fixed equipment is usually power operated and installed on a more or less permanent basis. It includes such items as steam tables, dishwashers, ranges, and steam-jacketed kettles.

019. Explain the operation and maintenance of the dishwasher and list the safety precautions to be observed during its use.

Dishwashing Machine. There are two types of dishwashers used in Air Force dining halls. One is equipped with a single tank and the other a double tank. In this chapter we will discuss the double tank dishwasher, because it is most commonly used in the dining hall.

The dishwashing machine is used to wash and rinse eating utensils in a quick, efficient, and sanitary manner. It is located in a room or area specifically designated for dishwashing. This room or area should be well ventilated, properly drained, and free from interference of other activities.

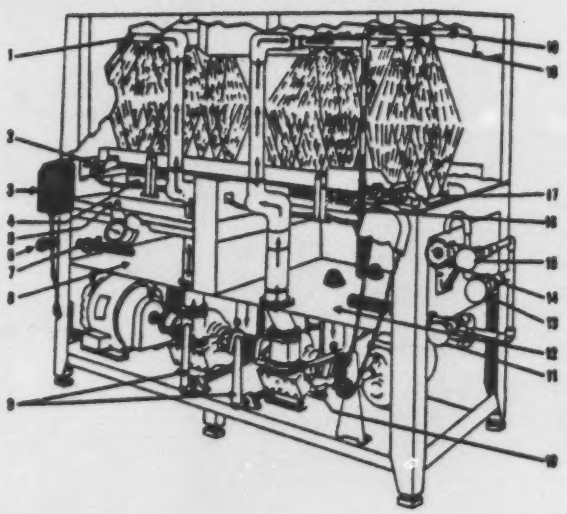
Figure 3-1 gives you an illustration of a double tank dishwashing machine. Before operation, close the drain valves (9), fill the tanks (8, 12) with water, turn on the heating unit, fill the machine with the proper amount of dishwashing compound, and start the machine. After dishes have been prewashed and placed on dish racks, feed the dish rack into the machine for washing and rinsing. Remove the dishes from the rack, then turn off the machine and the heat. Close the final rinse valve and drain tanks before cleaning.

The dishwashing machine must be cleaned after each meal. However, when the machine is operated on a continuous basis, it must be stopped every 1½ hours; drain and rinse the wash tank and add completely new tank-wash solution. To clean the machine follow these steps:

1. Assemble equipment and supplies.
2. Scrub interior of dishwasing machine.
3. Wash exterior of dishwashing machine.
4. Rinse and dry exterior of dishwashing machine.
5. Clean and dry spray tubes.
6. Wash scrap trays.
7. Wash overflow cap.

Before operating the machine again you should check it for cleanliness and see that it is put together properly. When operating the machine, keep your hands away from all moving parts; keep water away from the motor and other electrical equipment; be sure the water is at the proper level in the tanks before turning on the heat; and always turn off the heat before draining the tanks.

5223



Legend

1. Upper wash spray tubes.
2. Dish rack guide rail.
3. Electrical control box.
4. Lower wash spray tubes.
5. Scrap trays.
6. Wash tank steam injector valve (steam heated).
7. Wash water thermometer.
8. Wash tank.
9. Tank drain levers.
10. Conveyor speed control lever.
11. Rinse tank steam injector valve (steam heated).
12. Rinse tank.
13. Rinse tank hot water valve.
14. Rinse tank thermometer.
15. Final rinse hot water valve.
16. Lower rinse spray tubes.
17. Lower final rinse spray tubes.
18. Upper rinse spray tubes.
19. Upper final rinse spray tubes.

Note:
a. Wash tank hot water valve not shown, locate on wash end of machine.
b. Heating units may be gas, steam or electric.

Figure 3-1. Dishwashing machine.

Exercises:

1. What are the steps in operation of the dishwashing machine?

2. When the dishwasing machine is operated over a long period of time, it should be shut down every _____ hours.

3. List the safety precautions to be followed when operating the dishwasing machine.

020. State the operation and maintenance procedures of the steamtable and explain the safety precautions to be followed during its use.

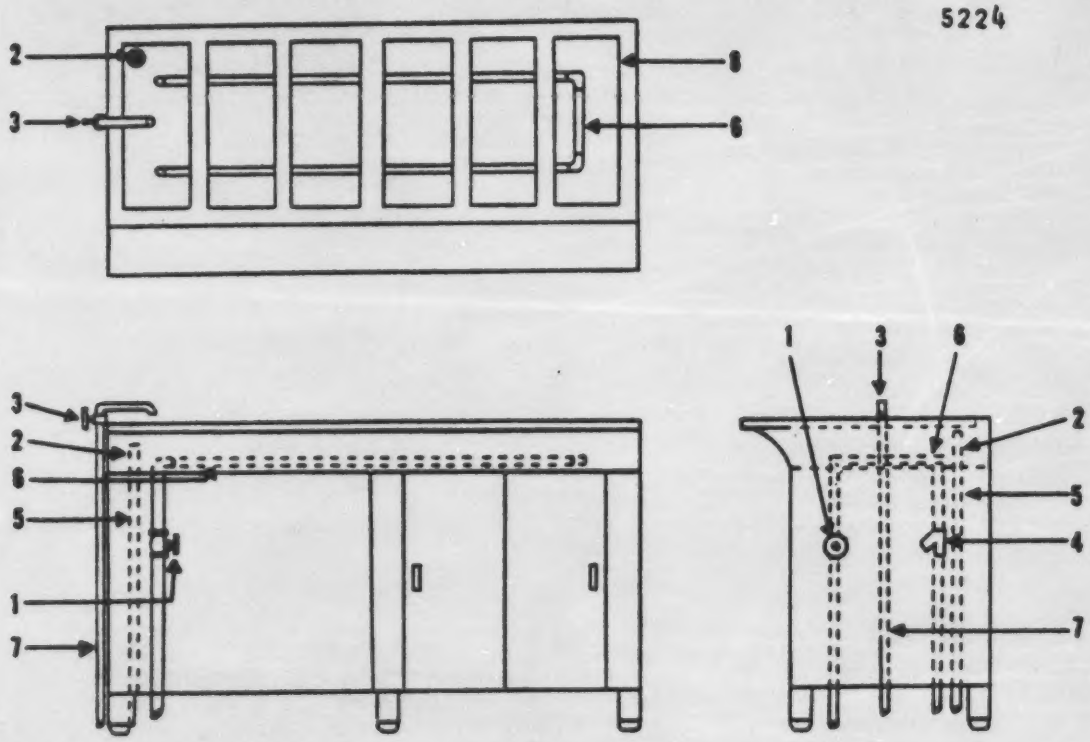
Steamtable. The steamtable is designed to keep food at the proper temperature for short periods of time during serving and for attractive display of food.

In heating the steamtable, three types of heating systems are used. They are steam, gas, and electric. Typical examples of the steam and electric-operated steamtables are shown in figures 3-2 and 3-3.

To operate the steamtable, fill with water and heat the water to the desired temperature (180° temperature is recommended). Higher temperatures dry food more rapidly and waste both fuel and food.

After serving the food, turn off the heating element, drain the water, and clean the inside of the compartment of all food particles. Use a scrub brush with cleaning powder and hot water to remove these food particles. Check for cleanliness, then refill the compartment with water and check for leakage before serving meals.

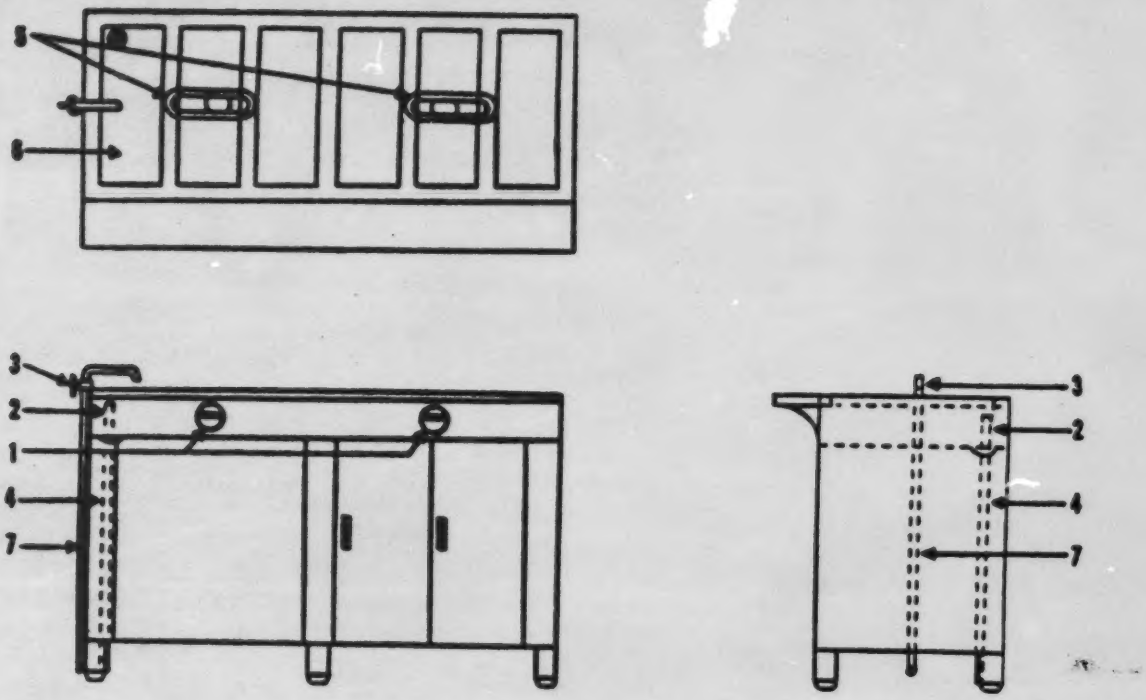
5224



Legend

1. Steam inlet valve.
2. Overflow pipe.
3. Water faucet.
4. Steam trap.
5. Water drain.
6. Steam coil.
7. Water pipe.
8. Insert opening.

Figure 3-2. Steamtable, steam heated.



Legend

1. Heat control switches.
2. Overflow pipes.
3. Water faucet.
4. Water drain.
5. Heating elements.
6. Insert opening.
7. Water pipe.

Figure 3-3. Steamtable, electric heated.

Failure to observe safety precautions can be a dangerous practice. You may injure yourself or the equipment. Some of the precautions to follow are:

1. Inspect joints, connections, seams, and heating units for leaks before each use.
2. Never turn on the heating unit until the compartment is partially filled with water.
3. Keep the floor around the steamtable dry and free of grease to prevent accidents.
4. Always use the overflow pipe to prevent water from overflowing the steamtable. Be sure the pipe is not stopped up.

Exercises:

1. What are the procedures in operating the steamtable?

2. List the steps in cleaning the steamtable.

3. Never turn on the _____ _____ until the compartment is partially filled with water.

4. List safety precautions for using steamtable.

021. Explain the operation and maintenance of the steam-jacketed kettle and list the safety precautions to follow during its use.

Steam-Jacketed Kettle. The steam-jacketed kettle is used to cook large quantities of food quickly and efficiently (fig. 3-4). To do this, steam is circulated between an inner and outer shell, producing an even distribution of heat for cooking. The steam-jacketed kettles are constructed of aluminum or stainless steel. Sizes are determined by the capacity in gallons—20, 40,

60, and 80. The 40- and 60-gallon sizes are used in most Air Force dining halls.

Steam-jacketed kettles can be dangerous equipment if not handled properly. Never turn on the heat unless water or food is in the kettle. If an empty kettle is allowed to heat, it may crack because of contraction when cold food or water is put into a hot, dry kettle. This may cause leaks. When the contents of the kettle are cooked, close the steam supply valve and remove the cooked product.

Remember that food will continue to cook for a short period of time after the supply of steam has been shut off. This cooking period should be figured into the total required cooking time to avoid having an overcooked product.

Clean the kettle very carefully after each use. No matter what kind or size of steam-jacketed kettle you have in your dining hall, you must do certain cleaning operations.

1. Carefully remove the clogged strainer. Empty it and then wash and rinse it thoroughly.
2. Remove any food particles from the draw-off pipe and valves with a rod that has a flexible wire brush.
3. Wash the interior of the kettle well with soap and water. Use soap and a stiff brush if spots appear on the cover of the kettle wall. Rinse thoroughly.
4. Wipe the exterior of the kettle wall and the legs with a damp cloth.

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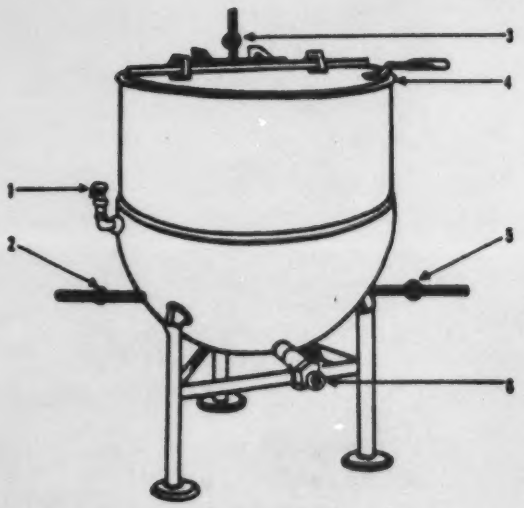


Legend

1. Safety valve and trapped air release.
2. Steam outlet valve.
3. Water inlet valve.
4. Lid.
5. Steam inlet valve.
6. Draw-off faucet.

Note: Strainer not shown, it is located inside of kettle, inserted in drain opening.

Figure 3-4. Steam-jacketed kettle.

To keep the steam kettle in good condition and to maintain safe working conditions, observe the following rules:

1. Leave the cover open when the kettle is not in use.
2. Inspect the steam pressure and see that there are no steam leaks in the fittings, piping, or valves.
3. Lift the safety valve regularly to make certain that the disc is not sticking to its seat.
4. Always open the steam outlet valve on direct connected modules before turning on the steam valve.
5. Do not turn on the kettle unless there is food or water in it.
6. Open the steam inlet valve a little at a time and do not open it fully until all cracking noise has stopped.
7. Stand to one side of the kettle when opening the cover to avoid escaping steam.

Exercises:

1. If an empty kettle is allowed to heat, it may _____ because of contraction when cold water or food is put into the hot, dry kettle.

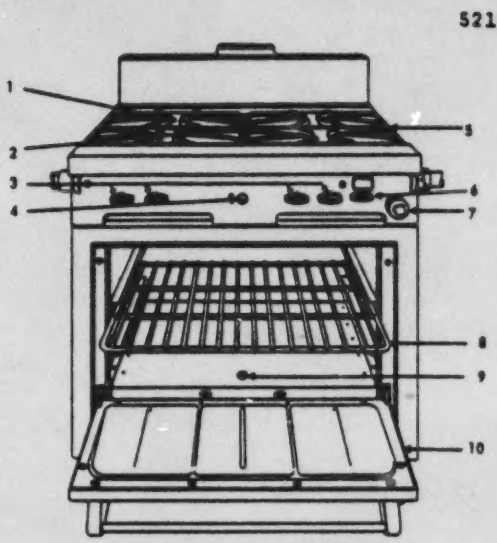
2. What items are used to clean the kettle?

3. List the safety precautions to be observed when operating the kettle.

022. State the operation and maintenance of a range and explain the safety precautions involved in its use.

Range. The ranges in Air Force dining halls are designed to cook, roast, and bake all types of food and liquids by an efficient heat-controlled method. The ranges are centrally located in the kitchen, close to other equipment.

Gas-fired ranges (fig. 3-5) are equipped with a pilot light that burns constantly after being lit.



1. Pilot burner
2. Gas burner
3. Gas burner valves
4. Pilot burner button
5. Open top grates
6. Oven burner valve
7. Thermostat
8. Grate
9. Oven lighting porthole
10. Oven door

Figure 3-5. Range.

On some ranges it is used to ignite burners automatically when gas is turned on to the burners. On other models the lighting is controlled manually by pushing a pushbutton (4) that increases the gas flow and forces the flame to the burners after you turn the gas on.

You might think that everyone knows how to light a gas burner. There are, however, some important things to remember that will help make the job easier and safer. When the gas-heated range is not equipped with a pilot light, hold a burning match over the burner with one hand. With the other hand slowly open the control or gas cock until the burner is lit. If the gas does not ignite the instant the gas is turned on, it indicates that the mixing tube and burner are full of air. The pressure of the gas should force the air through the tube, and then the burner will ignite. This delay is particularly noticeable if the burners have long mixing tubes.

The range should be cleaned after every meal. This will prevent grease and spilled food from accumulating. Remove the encrusted matter on the top of the stove and the grids with scrapers and a wire brush. Wash the grids with hot water and soap. Never use water or a damp cloth in the oven. Wipe the inside with a cloth and scrape off hardened material with a wire brush.

In addition to keeping the range in good shape, here are a few tips in keeping yourself in good shape.

- Keep your hands and arms away from open flames.
- Always make sure the oven pilot light is lit and the burner is burning before closing the door.
- Always use hot pads when handling hot pots and pans.
- Don't let foods spill over when removing pots from the top of the range.

Exercises:

1. When lighting the burner and there is a delay, what would be the problem?

2. Name three safety precautions to observe when using the range.

3. How often should the range be cleaned?

023. Explain the operation and maintenance of a vertical steamer and state the safety precautions to follow when using the steamer.

Vertical Steamer. This appliance is primarily designed to provide well-cooked, palatable foods in the shortest possible time. Originally it was designed to cook vegetables, but experience has shown that is equally useful in cooking meats, poultry, and seafood. The steamer in figure 3-6 has three compartments.

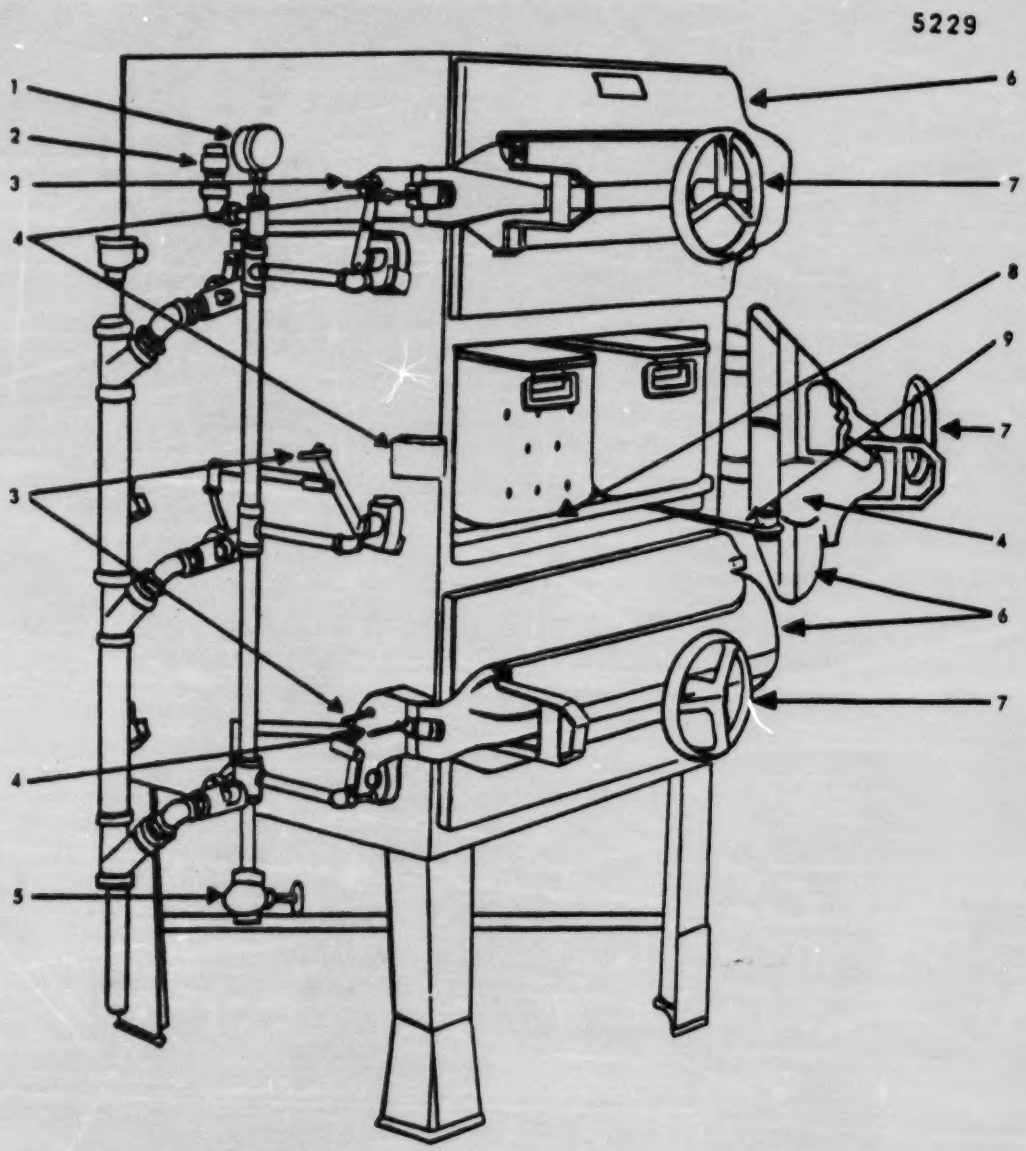
The tight-fitting doors retain the pressure and prevent the escape of cooking odors. Various foods can be cooked in different compartments of the cooker at the same time without mixing flavors, since each compartment is an entirely separate cooking chamber. When operating the vertical steamer, follow the steps below:

1. Place baskets of food in the steamer.
2. Close and tighten the doors.
3. Turn on the main steam inlet valve.
4. Complete cooking process.
5. Turn off steam inlet valve.
6. Remove the cooked product from the chamber.

Clean the steamer thoroughly after each day's operation. The inside and outside should be washed with hot, soapy water and then rinsed with hot, clear water. Then allow the steamer to air dry.

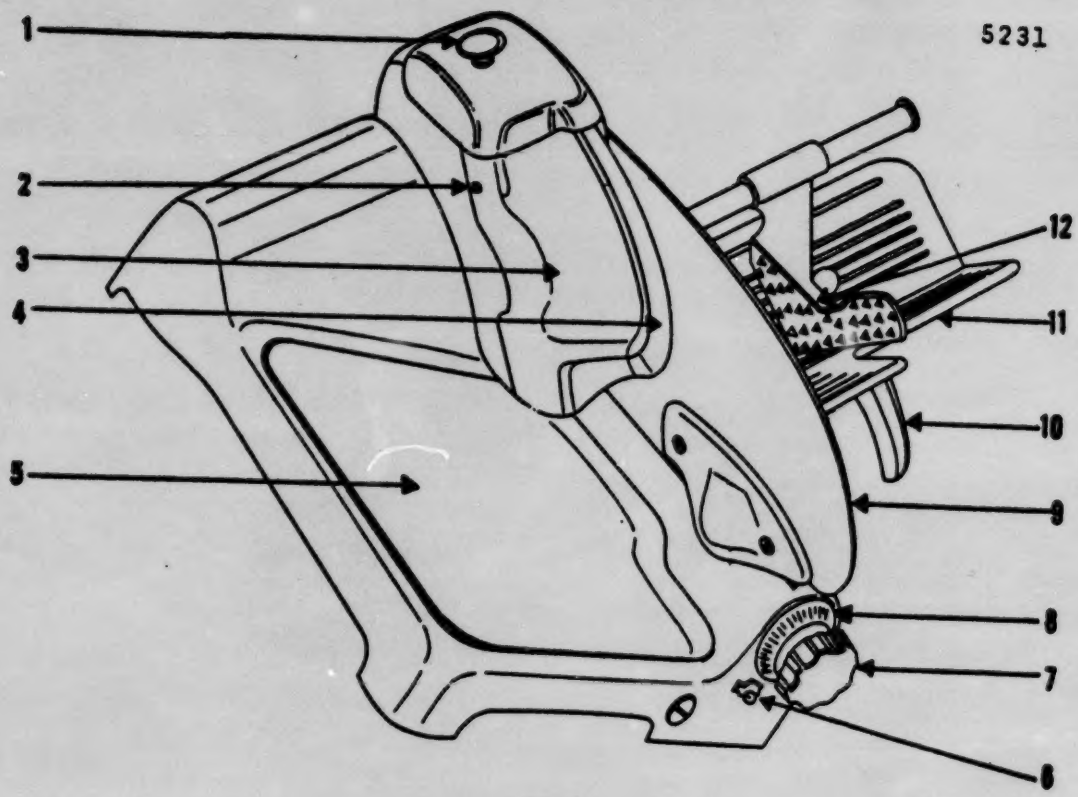
Vertical steamers can be very dangerous if not operated or maintained properly. Listed below are the safety precautions that should be observed.

- Compartment doors should be left open when the steamer is not in use.
- Check for obstructed safety valves.
- Never tighten doors excessively because it wears out the door gaskets. Just tighten enough to seal the joint.
- Never open doors when the steam is on.
- After live steam is turned on, loosen doors enough to release the pressure. Stand at the hinge side of the door when opening to avoid escaping steam.



1. Steam pressure gauge
2. Safety valve
3. Compartment steam valve control handle
4. Door locking device
5. Main steam inlet valve
6. Compartment doors
7. Door tension wheel
8. Sliding shelf

Figure 3-6. Vertical steamer.



Legend

1. Sharpening attachment.
2. Slice deflector pins.
3. Slice deflector.
4. Cutting knife.
5. Receiving tray.
6. Motor switch.
7. Thickness control knob.
8. Thickness indicating scale.
9. Thickness gauge plate.
10. Feed carriage grip.
11. Feed carriage.
12. End slice plate.

Figure 3-7. Meat slicing machine.

Exercises:

1. What is the next step in operating the steamer after you place the food in it?

2. What materials are used to clean the vertical steamer?

3. Name three safety precautions that should be followed when operating the steamer.

024. State the operation and maintenance procedures of the meat slicing machine and determine the safety precautions to observe in its use.

Meat Slicing Machine. This machine is a portable slicer designed for slicing hot or cold meat, vegetables, and cheese. It provides uniformity and speed in slicing, with a minimum of waste. Slicers are made of either porcelain or stainless steel and are built to hold all the necessary devices for efficient operation. They may be either gravity fed or semiautomatic. On semiautomatic slicers, the meat is placed on a platform and then pushed toward the slicing knife by hand or by a push plate. On gravity types (fig. 3-7) the meat is placed on a V-shaped holder and fed to the cutting knife by gravity. Each slicer has a

graduated dial or lever used to adjust the thinkness of the slices. When the slicer is in use, it is located in the kitchen on a cook's worktable nearest the serving line.

Using the meat slicer is a simple, yet delicate operation. The entire machine and knife are constructed of sturdy material that can withstand years of hard wear. If the slicer is used with care, if all safety precautions are observed, and if the knife is cleaned and sharpened according to instructions, mechanical failure of the slicer will be minimum. In case of any mechanical or electrical trouble, immediately notify your supervisor. You must disassemble and clean the slicer following each use.

1. Before starting your cleaning operation, turn the thickness control knob to 0 on the thickness indicator scale, and disconnect the plug.

2. The materials used to clean the machine are soap, hot water, a scrub brush, and two wiping cloths.

3. Wash the stationary parts, using one wiping cloth saturated with cleaning solution to remove all grease and food particles.

CAUTION: Keep the cloth away from the cutting knife edge. Also watch your fingers to prevent contact with the cutting knife.

4. Use the other wiping cloth wet with clear water to rinse off all traces of the cleaning solution. Wring the cloth dry and wipe the stationary parts dry. Use the same caution as described in washing the slicer.

5. Use the rest of the cleaning solution to wash the disassembled parts.

6. Rinse disassembled parts in hot water.

Don't serve a slice of your finger with the roast beef. Follow these safety precautions every time you work with the slicing machine.

1. Never use the slicer when the knife guard is detached.

2. Remove electrical plug from socket immediately after each use.

3. Keep your hands dry when using the slicer.

4. Keep your hands away from the revolving knife blade.

5. Never push food products against the knife blade with your hands; use the food grip.

6. To avoid severe cuts to your hands, never scrub or use a scrubbing motion when cleaning the knife-wipe.

Exercises:

1. The following statements pertain to the meat slicing machine. Indicate whether they are true or false by marking T or F in the space before the statement.

_____a. Slicers may be gravity fed or semi-automatically fed.

_____b. When cleaning the slicer, turn the thickness control knob to 0.

_____c. Leave the machine plugged in until you intend to use it again.

_____d. Never use the slicer with the knife guard detached.

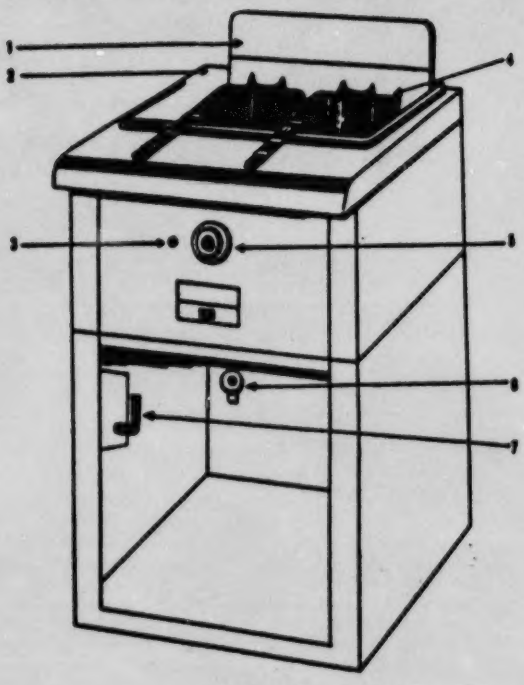
025. State the operation and maintenance of the deep fat fryer and explain the safety precautions to follow in its use.

Deep Fat Fryer. The deep fat fryer is designed for frying such foods as meat, fish, poultry, potatoes, and certain vegetables and pastry products. The deep fat fryer consists of a deep vessel for holding melted fat; a wire basket or baskets, depending on the size of the fryer; gas or electric heating units; automatic heat controls; and a splash back. The fryer is located in the kitchen, generally adjacent to the ranges, in order to have a continuous flow of food from the fryer to the serving line.

There are both electric and gas-heated deep fat fryers. All, of course, have a thermostat to control the temperature of the fat. A gas-heated fryer is shown in figure 3-8.

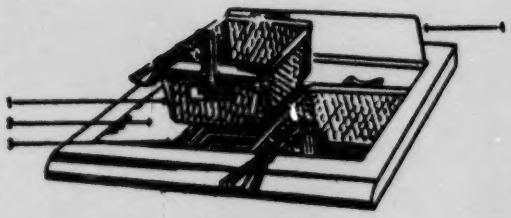
The deep fat fryer must be filled with fat up to the proper level—about three-fourths full. Never turn the heating elements on until they are covered with fat or liquid. Never turn the thermostat to the highest point when preheating. Turn the thermostat to 250° F. and allow 10 minutes for preheating. Turn the fat off about 10 minutes before fat is drained from the fat vessel.

Each day you should look for and remove any film of fat deposited on the sides and the heating unit tubes. You must clean the fryer thoroughly. Once a week boil out the vessel with a caustic or cleaning compound. Then drain and refill the fryer with water, boil, and drain again. Add 2 or 3 ounces of vinegar to the final cold rinse to neutralize any caustic or cleaning compound that may be left. Be sure to wipe the fryer



Legend

1. Splash back.
2. Fat reservoir.
3. Pilot light.
4. Fry basket.
5. Thermostat.
6. Fat reservoir drain valve.
7. Main electric switch.



Legend

1. Baskets.
2. Fat reservoir.
3. Electric heating coil.
4. Splash back and basket support.

Figure 3-8. Deep fat fryer.

dry. Any water mixed in with fat will cause trouble when heated. The hot fat will cause the water to splash out or boil over the sides.

Proper use, cleaning, and care of the fryer will result in better food products and a longer life for the deep fat fryer.

For safety, never overfill the fryer with fat. Fill it to about 1 inch below the lower edge of the spill back. Check the drain valve to make certain that it is shut and does not drip. Make sure that the cleaning solution has been completely rinsed out of the fryer. Also be sure that there is no water left in the fryer before you add the fat.

Never heat the fat to the smoking point. The maximum temperature should be 380° F. Check this temperature with a deep fat thermometer. Remember that the temperature of the hot fat is much hotter than that of boiling water. The hot fat can cause serious burns.

Exercises:

1. To what temperature do you preheat the deep fat fryer?

2. What is the minimum time the heat should be turned off before you drain the fat from a deep fat fryer?

3. Do not use _____ fat or fats containing _____ in the deep fat fryer.

4. How often should the vessel be boiled out with caustic or cleaning compound?

28

026. Explain the operation and maintenance of a griddle and state the safety precautions to observe in its use.

Griddle. The griddle is designed to fry foods that require cooking in little or no fat. It can be used for cooking meats, fish, poultry, eggs, certain vegetables, and batter products. Griddles are usually located on the serving line or adjacent to it. Thus, you can serve people hot food directly from the griddle.

A typical griddle is shown in figure 3-9. There are two types of griddles used in the dining hall. One type is gas operated and the other is electrically operated. Both types have temperature controls to maintain the proper frying temperature.

In operating the electrical type grill, the following steps are used:

1. Turn on the heating unit.
2. Regulate the thermostat.
3. Allow the griddle to preheat (about 7 minutes).
4. Lightly grease the grill.
5. Place the food on the griddle plate.
6. When the cooking process is complete, turn off the grill.

To clean the griddle, scrape the residue off with a metal scraper. Wipe off any excess grease with a heavy cloth and use a griddle stone until the surface is free from all food particles. Use a clean cloth to complete the cleaning process. Never wash the griddle plate with soap and water. The griddle should be checked for cleanliness before using again.

Safety precautions to follow when using the griddle are:

1. Do not allow grease receptacles to overflow.
2. Do not put water on griddle plate or allow water to come in contact with electrical parts.
3. If griddle is electrically heated, remove the electric plug after using.
4. Turn off burners after each use.

Exercises:

1. After cooking on the griddle, wipe the grease off and use a _____ _____ to free the surface from food particles.

2. What are the safety precautions to observe when using the griddle?

3. How long should the griddle be allowed to preheat?

027. State the operation and maintenance of a roasting oven and explain the safety precautions to follow in its use.

Roasting Ovens. The cooking or roasting oven is designed specifically to bake or roast foods under sanitary conditions by regulated heat. The

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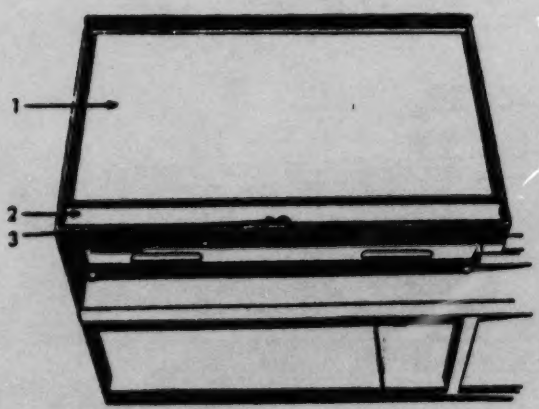
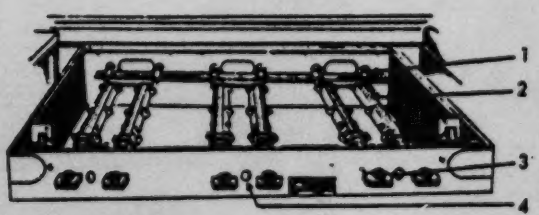


1. Frying surface
2. Grease trough
3. Trough drain

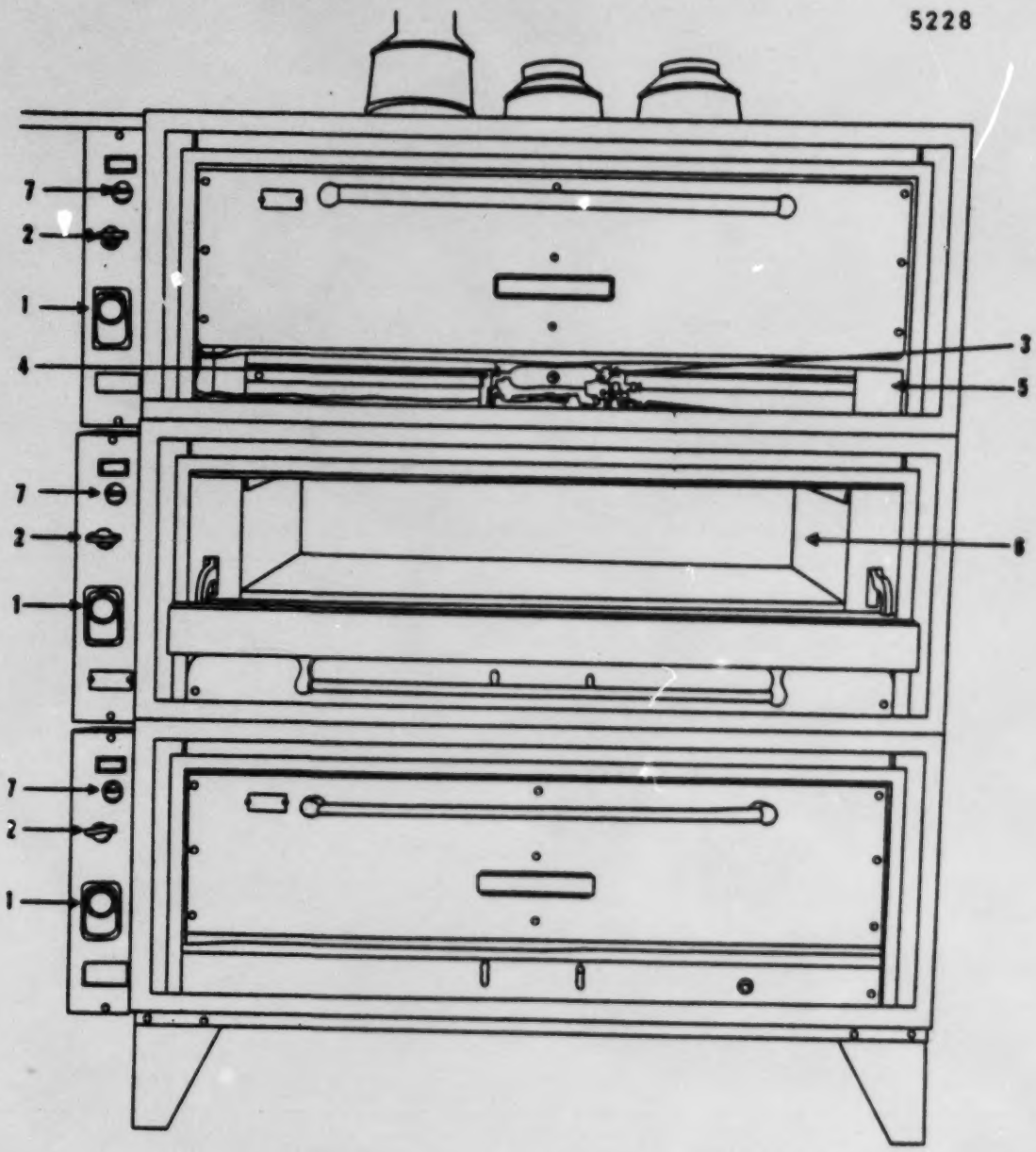


1. Burner locking device
2. Gas burners
3. Gas burner valve
4. Lighting port hole

Figure 3-9. Griddle, gas heated.

two main fuels used for heating the ovens are gas and electricity. The two types of ovens most commonly used by the Air Force are (1) sectional, which is illustrated in figure 3-10, and (2) stack ovens. You can see in figure 3-10 that each of the sectional ovens has its own burner compartment, thermostat, and controls. Each oven can be set at a different temperature and can be used for either baking or roasting.

The individual compartments of the stack



Legend

1. Thermostat.
2. Gas burner valve.
3. Pilot light.
4. Gas burner.
5. Burner compartment.
6. Oven compartment.
7. Pilot light gas valve.

Figure 3-10. Roasting oven.

ovens are placed one above the other. All are heated by the same heating unit and are at the same temperature. The stack ovens and sectional ovens are centrally located in the kitchen, adjacent to the other equipment and within easy access to the serving line.

Open the oven door on the gas oven 10 minutes before lighting to clear away any accumulated gas. Do this as a safety precaution. Open the burner compartment door, light a match or other lighting agent, and hold the flame to the pilot burner or top of the oven burner. Turn the temperature control dial clockwise to approximately 250°F. and open the gas valve to the ON position. The pilot burner and oven burner should ignite simultaneously. Be sure that the gas pilot and oven burners are completely ignited. Close the compartment door. Turn the thermostat dial clockwise to the oven temperature required and allow the oven temperature to preheat for at least 20 minutes. You will learn the exact time required through experience.

To make oven cleaning a less distasteful job, remove boilover and spillover material before it has time to carbonize. When the oven is cool, wipe the interior with a damp cloth daily. Scrape the bottom if necessary. Never throw water on oven decks to cool them. Swab with a damp cloth. After each use, remove grids, wash thoroughly, rinse, and air dry.

Following the suggestions given below will reduce maintenance work on the ovens and protect both equipment and personnel.

- Leave oven doors open to completely air dry the interior of the oven.
- Turn on the heating element for 5 minutes to help dry the oven.
- When using the oven, never close the oven door without checking to make sure the gas is lit.
- Wipe up spilled grease immediately, as grease can create a fire hazard.
- Before lighting the oven, leave the oven door open for 10 minutes to allow gas fumes to escape.
- Never wash the oven while it is hot because this causes warping.
- Use dry cloths to protect your hands and grasp pans with both hands when removing them from the oven.

Exercises:

1. Why must you not wash an oven while it is still hot—other than to avoid burning yourself?
2. Open the oven compartment door on the gas oven _____ minutes before lighting to clear away any accumulated gas.
3. After temperature control dial has been turned clockwise to 250°, what is the next step?

028. State the operation and maintenance procedures of a vertical food mixing machine and list the safety precautions to observe in its use.

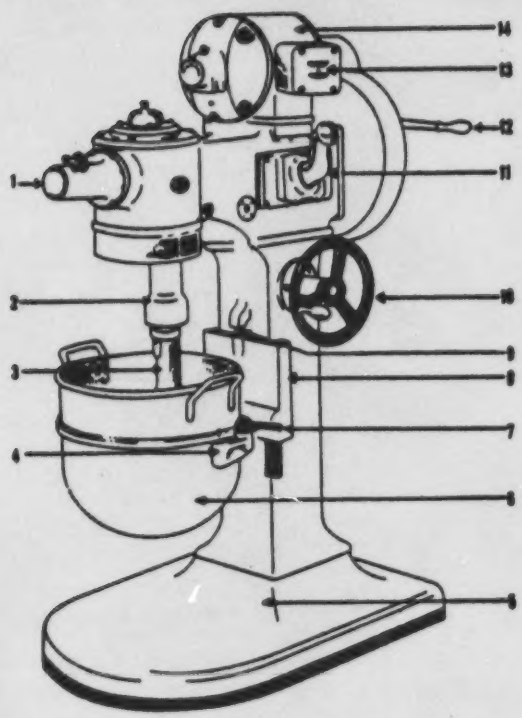
Vertical Food Mixing Machine. The food mixer is used to mix or whip foods and liquids in large quantities to a desired consistency at controlled speeds. The mixer consists of a one-piece cast iron frame with a three- or four-speed inclosed electric motor, a bowl support or holder, bowls, and various attachments.

The mixing machine is located conveniently near worktables, steamer, ranges, and steam kettles. There should be plenty of working area around it. There are two general types of vertical mixers: the floor model, which is pedestal mounted (fig. 3-11A), and the table model, which is mounted on a table.

Bowls are usually made of tinned steel and have handles and lugs. Each mixer has a bowl holder or support consisting of two metal arms that extend outward from the frame and upon which the bowl rests. The bowl holder can be raised or lowered easily and gradually by a hand-operated level. Attachments include wire whips, dough arms, different types of beaters, and a meat and food chopper (fig. 3-11B).

Before operating the machine, put the ingredients into the mixing bowl and place it in the bowl support; then lock it in position. Put the correct attachment in the hub. The wire whips are used for creams, eggs, and light work; the flat beater for batters and medium work. A hook-shaped beater is used for bread dough. When the correct attachment is firmly in place, raise the bowl to the correct level, select the proper speed, and start the motor. You will notice some recipes call for a change in speed after the mixing process has started. When shifting to different speeds, use care to avoid slipping gears. When you are through, turn the motor off, lower the bowl, and clean it out.

After each use, remove the bowl and attachments. Wash them with soap and water, rinse thoroughly, and air dry. After each use, wipe off the outside of the unit with a damp cloth.



Legend

1. Attachment hub.
2. Revolving shaft housing.
3. Beat or whip socket.
4. Bowl support.
5. Base.
6. Bowl.
7. Bowl lock handle.
8. Bowl support guide.
9. Bowl support guide travel stop.
10. Hand wheel for raising or lowering.
11. Speed selector handle.
12. Clutch handle.
13. Motor switch.
14. Motor.

Figure 3-11A. Vertical food mixing machine.

Always wash the bowl and beater immediately after use to prevent food from drying on the surface. After beating egg mixtures or flour batters, rinse the bowl and beater with cold water. Then use hot water to wash them. If you use hot water first, the eggs or flour mixture will be cooked onto the surface of the bowl and beater, making it more difficult to clean them.

While mixers can operate at capacity continuously for 1 hour without overheating or damaging the mixer, you must be careful never to overload or overheat the motor. Bowls are expensive pieces of equipment and should never be dented. Raise and lower the bowl holder gradually. Never drop the bowl.

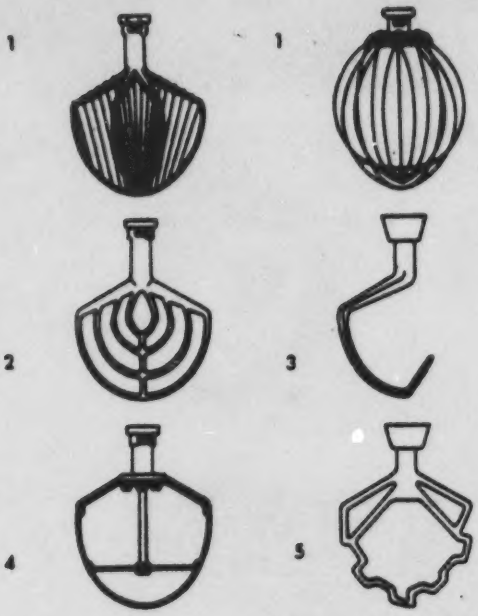
Remove heavy bowls from the mixer to a bowl truck. If a bowl truck is not available, get someone to help you carry the bowl. Don't drag the bowl across the floor. That will scrape the surface and may dent the bottom of the bowl.

It is easy to lose a hand or arm in a mixer if you are careless. Practice all the safety rules at all times.

- Never scrape the product down in a mixing bowl while the mixer is operating.
- Keep your hands away from paddles or whips when the mixer is operating.
- Keep the motor dry and the area around the mixer dry and clean. Don't electrocute yourself or slip and fall into the mixer.
- Never start the mixer when the beaters or whips are not properly attached to the spindle.
- Fill the mixer bowl only to three-fourths capacity. Never overload.

The food mixing machine, bowls, beater, and whips can be efficiently and properly used if you observe the instructions in the use and capabilities of this equipment. Proper care of attachments is essential and the following are a few reminders for good operation:

- Do not use mixing bowls as stock pots for cooking. Mixing bowls are for mixing only.
- Use proper beaters and whips, as indicated on the job operation sheet.
- Don't strike beaters or whips against the bowls.
- When changing speeds, insure the proper meshing of gears.



1. Wire whip beaters
2. Flat beater
3. Hook-shaped beater
4. Beater for pastry dough
5. Beater for moderately stiff dough

Figure 3-11B. Attachments for food mixing machine.

Exercises:

1. After beating egg mixtures, rinse the bowl and beaters with _____ water.

2. List the safety precautions to observe when operating the mixer.

3. When changing speeds, what must you be sure to do?

029. State some important maintenance procedures for the coffee maker and state the safety precautions to follow in its use.

Coffee Maker. The coffee maker is designed to brew fresh coffee under strict sanitary conditions. Each coffee maker is made in units, and each unit may contain four or five burners set in a single or double deck. The electrically operated coffee maker has the on and off switch and the heat control switches on the front. This type of coffee maker is shown in figure 3-12.

Glass bowl containers are supplied for the actual brewing of the coffee. The coffee grounds are measured and put into disposal paper filters at the top of the machine. An empty glass container is placed on the brewing burner and the switch is turned on. The coffee is made by hot water brewing over the coffee grounds. When the brewing is completed, remove the container to one of the warming burners. Then remove and discard the grounds.

When the glass bowl is empty, clean it in clear, hot water. If coffee stains are visible, remove them by using baking soda on a clean, damp cloth. The coffee maker and burners should be cleaned with a damp cloth.

A few safety precautions to follow when using the coffee maker are:

- Never put hot glass bowls in cold water. They may crack.
- Check all connections for short circuits in electrically operated models.
- Turn off burner when not in use.

Exercises:

1. What is used to remove coffee stains from the glass bowl?

2. What would happen if you put a hot glass bowl in cold water?

3. Where are the heat controls located on the coffee maker?

030. State the operation and maintenance of a vegetable peeler and explain the safety precautions to follow in its use.

Vegetable Peeler. The vegetable peeler, as shown in figure 3-13, is designed to peel potatoes and other root vegetables with the least amount of wasted vegetables. The potato peeler consists of a hopper, dish, peel trap, and motor. The vegetable peeler is located near the vegetable work area and the vegetable storage rack, preferably near a floor drain.

The hopper is round in shape and has a funnel-shaped top opening to permit pouring vegetables in without spilling. The entire inner surface is covered with an abrasive substance. The outlet for removal of vegetables has a hinged door

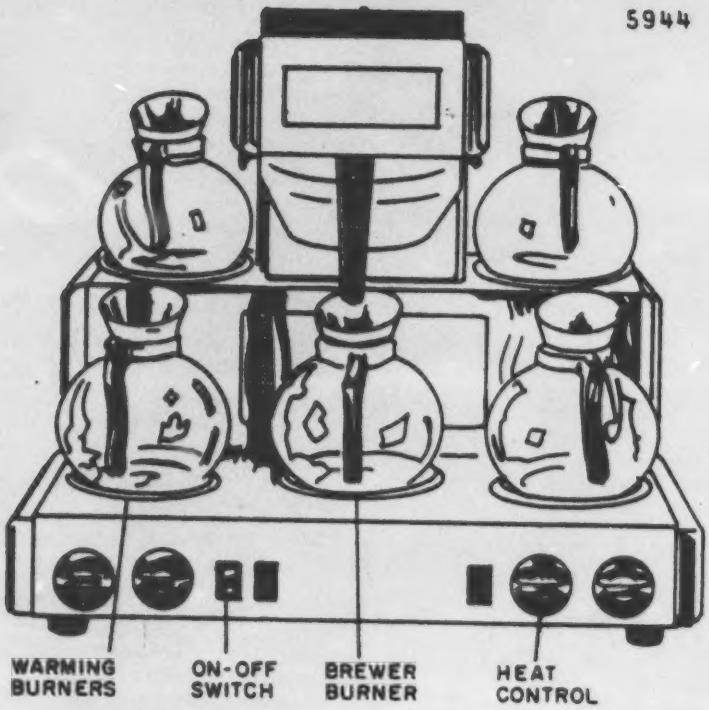


Figure 3-12. Coffee maker.

with a locking device and a chute for discharging the vegetables. Potatoes are peeled by the action of a revolving dish.

To make vegetable peeling more economical, sort the vegetables to be peeled according to size. If you put large and small potatoes, for instance, into the peeler at the same time, the small ones will be peeled down to nothing before the large ones are finished.

Before you pour in the vegetables, close and lock the outlet doors. Open the wash water valve. Then open the outlet door when the peeling is completed. Empty the peel trap after three or four changes of vegetables.

Each time you use the vegetable peeler you must wash and rinse the dish. You should also dash hot water into the peeler until no sediment or peelings drain through the outlet pipe. Empty and rinse the peel trap as soon as you are through using the machine, and wash and rinse the strainer. Wipe the exterior surfaces with a damp cloth when you are through with the machine.

For best service take care of your peeler. Be sure that there is no foreign material (gravel, wood chips, etc) in with the vegetables. Check carefully as you pour the vegetables into the hopper. Remember that it is running water that cleans the vegetables as they are being peeled and helps to keep the sewer from being clogged.

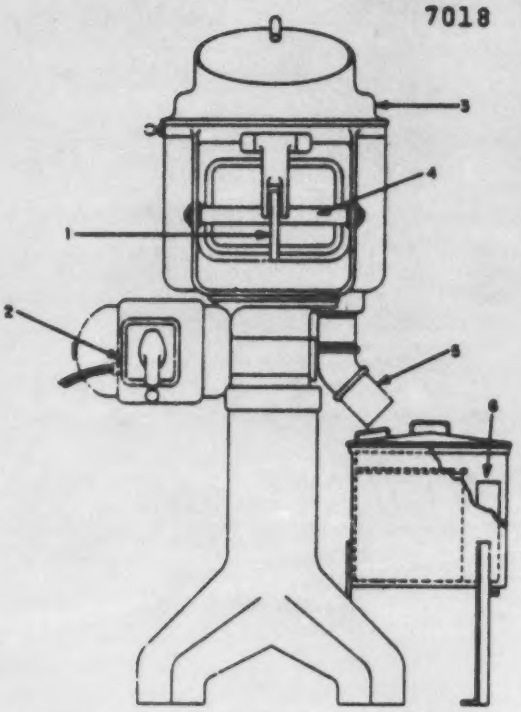
Cleaning the machine is another preventive maintenance principle. At the end of each day's operation, remove the top cover and lift out the dish by its handles. Pour a bucket of hot water into the peeler to wash out the peelings. When the machine is not in use, leave the discharge door open to reduce wear on the gasket and to let the inside of the machine air dry.

Play it safe. Never overload the peeler. Check its rated capacity before loading. Check the abrasive disk before starting the machine. Make sure that it is secured in place. Do not put your hands into the machine when it is operating. Keep water off of the motor. Don't take a chance of electrocuting yourself.

Exercises:

1. The vegetable peeler peels ____ ____ and other _____ vegetables.

2. How often should you empty the peel trap on the vegetable peeler?



1. DOOR LOCKING LEVER
2. ELECTRIC SWITCH
3. HOPPER
4. OUTLET DOOR
5. DRAIN
6. PEEL TRAP

Figure 3-13. Vegetable peeler.

3. Name the safety precautions to follow when using the vegetable peeler.

4. What step must you follow before you add vegetables to the peeler?

031. List the steps of operation and maintenance of a tilt grill and state the safety precautions to follow when using the grill.

Tilt Grill. This piece of equipment, as shown in figure 3-14, can be used more often and in more different ways than any other piece of cooking equipment in the kitchen. It can be used as a range, frying pan, griddle, defroster, boiler, deep fat fryer, saute pan, or kettle.

The grill's even heat pattern, its convenient working height, and the contoured lip and tilting mechanism make this an excellent piece of equipment to work with. The tilting concept eliminates ladling, heavy lifting, and possible spillage. Food can be transferred directly to the serving pan.

The clean-up time is reduced considerably. The grill is located on steel legs, high enough off the floor to make cleaning under the unit much easier. The materials used in cleaning the grill are hot, soapy water and a soft brush. After cleaning, the unit is rinsed with clear, hot water.

Some safety precautions to observe when using the grill are:

- Prevent falls by making sure the area around the grill is free of grease and water.
- When lifting the lid while the grill is in operation, stand to one side so you won't be burned by steam.
- Always use hot pads when handling hot pans and pots.

Exercises:

1. List four different ways the tilt grill can be used to cook food.

2. What materials are used to clean the tilt grill?

3. State safety precautions to follow when using the tilt grill.

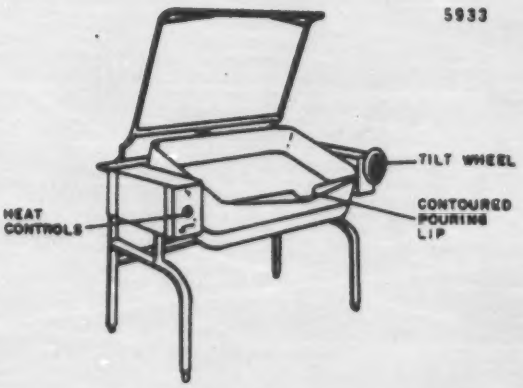


Figure 3-14. Tilt grill.

ANSWERS FOR EXERCISES

Chapter 1

References:

001 - 1. c.
d.
b.
a.

002 - 1. a. Food service helper.
b. Apprentice cook.
c. Cook.
d. Food service supervisor.
e. Food service superintendent.

002 - 2. 62230.

003 - 1. 5 level.
003 - 2. 3 level.
003 - 3. 7 level.

004 - 1. Official.
004 - 2. Top Secret, Secret, Confidential.
004 - 3. Top Secret.
004 - 4. Secret.
004 - 5. Confidential.

005 - 1. Secret.
005 - 2. For Official Use Only.
005 - 3. Confidential.
005 - 4. Top Secret.

006 - 1. Mail, telephone, messenger.
006 - 2. a. Reliability of delivery.
b. The security of the mode.
c. The speed of delivery.

006 - 3. a. Most reliable mode, all security classes, most secure mode.
a. Slowest mode.
b. Reliable when certified or registered, secure within territorial limits of the United States.
b. Slow delivery, secret and below.
c. Fast.
c. None, unreliable, insecure.
d. All, fast, secure when coded.
d. Unreliable.
e. All, secure when coded, fast.
e. Unreliable.

007 - 1. Commander's call, telephone, radio.

007 - 2. 1. h.
2. b.
3. c.
4. d.
5. i.
6. e.
7. f.
8. j.
9. g.
10. a.

008 - 1. e.
008 - 2. a.
008 - 3. h.
008 - 4. f.
008 - 5. d.
008 - 6. i.
008 - 7. j.
008 - 8. c.

Chapter 2

009 - 1. 163–8.
009 - 2. Medical service personnel.
009 - 3. Definite standards.

010 - 1. Soap and water.
010 - 2. Physical, mental.
010 - 3. Keep fingernails short and clean; bathe daily, especially before going on duty; change socks and undergarments daily; brush your teeth a minimum of twice daily; visit your barber or hairdresser at regular intervals; have a good close shave; all male personnel will wear hats, females will wear hairnets; wear clean uniforms; keep shoes polished; check sneezes with a handkerchief; do not touch your face or mouth with your hands when handling food; do not smoke in food preparation areas; use forks, tongs, or spoons when preparing or serving food; use a clean utensil when sampling food during preparation; handle containers by the outside edges or areas; remove all rings (except wedding rings) and watches during food preparation and serving; get prompt medical attention for cuts and scratches beyond superficial nature.

011 - 2. Respiratory.
011 - 3. Intestinal.
011 - 4. Insect-borne.

012 - 1. a. Supervisor inspection.
b. Medical service inspection.
c. Physical examination.

012 - 2. a. Supervisor inspection.
b. Physical examination.

012 - 3. a. Observe personal appearance; techniques used in food preparation; area and equipment cleanliness; hand washing facilities; temperatures of

References:

food being served; wash and rinse waters of dishwashing machines; ice boxes and freezers; finger cultures; swab cultures; of utensils.

013 - 1. a. Dirt that is soluble in water.
b. Dirt that is insoluble in water.
c. Dirt that produces a stain.

013 - 2. Water.

013 - 3. Solvent, emulsifying agent.

013 - 4. a. Those emulsifying dirt with water.
b. Those removing dirt by abrasive action.

013 - 5. a. By dissolving the substance causing the stain.
b. By the action of a bleaching agent.
c. By absorbing the substance causing the stain.

014 - 1. a. Provides the necessary sanitation.
b. It protects the floor against undue damage and wear caused by abrasive dirt.
c. It adds to the attractiveness of the facility.

014 - 2. Clean them.

014 - 3. a. Wet mopping.
b. Damp mopping.

015 - 1. a. Elimination of the breeding places, proper storage of refuse and garbage, installation of screens.
b. Use chemicals or pesticides to control pests.

015 - 2. Flies, roaches.

015 - 3. Have garbage picked up regularly; keep garbage cans clean and covered with tightly fitting lids; keep area round garbage racks free of refuse; clean exterior and exterior grease traps regularly; protect foods by screening or refrigeration; clean latrines daily; screen all windows and doors.

015 - 4. Fill all cracks and crevices; eliminate all likely breeding places; keep food covered; watch food deliveries so that no roaches are brought in.

015 - 5. Species.

Chapter 3

016 - 1. Hand operated items.

016 - 2. The wooden handles will swell and pull away from the metal shaft; could cause serious injury to unsuspecting persons.

016 - 3. A brush, soap, and water.

016 - 4. Decrease or increase the valve.

017 - 1. Harsh scouring powders.

017 - 2. Use hot pads; have someone give you a hand.

017 - 3. Rust.

018 - 1. Remove water from mops.

018 - 2. Use warm soapy water, rinse in clear hot water, then air dry.

019 - 1. Close drain valves, fill tanks, turn on heating unit, fill with dishwashing compound, and start machine.

019 - 2. 1½ hours.

019 - 3. Keep your hands away from moving parts, keep water away from the motor and other electrical equipment, be sure the water is at the proper level, turn off the tanks before draining the tanks.

020 - 1. Fill with water and heat to the desired temperature.

020 - 2. Turn off the heat; drain the water; clean the inside of the compartment to free food particles; use a scrub brush and cleaning powder with hot water; rinse.

020 - 3. Heating unit.

020 - 4. Keep floors dry and free of grease, be sure overflow pipe is not obstructed, and never turn on the heating unit unless there is water in the compartment.

021 - 1. Crack.

021 - 2. Soap and water, stiff brush, flexible wire brush.

021 - 3. Inspect the steam pressure to see that there are no leaks, do not turn on the kettle unless there is food or water in it, stand to one side of the kettle when opening the cover to avoid escaping steam.

022 - 1. Mixing tube and burner are full of air.

022 - 2. Keep hands away from flames, use hot pads when handling hot pans and pots, always make sure the oven pilot light is lit and the burner is burning before closing the door.

022 - 3. After every meal.

023 - 1. Close and tighten the doors.

023 - 2. Soap and water.

023 - 3. Check for obstructed safety valves, never open doors when the steam is on, after live steam is turned on, loosen doors enough to release the pressure. Stand at the hinged side when opening the door to avoid escaping steam.

024 - 1. a. True.
b. True.
c. False.
d. True.

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References:

025 - 1. 250°F.
025 - 2. 10 minutes.
025 - 3. Bacon, salt.
025 - 4. Once per week.

026 - 1. Griddle stone.
026 - 2. Do not allow grease receptacles to overflow, do not put water on the griddle plate or allow water to come in contact with electrical parts, if the griddle is electrically heated remove the electric plug after using, turn off burners after each use.
026 - 3. 7 minutes.

027 - 1. Causes warping.
027 - 2. 10 minutes.
027 - 3. Open the gas valve to the ON position.

028 - 1. Cold.
028 - 2. Never scrape the product down in the mixing bowl while the machine is operating; keep your hands away from paddles or whips when the mixer is operating; keep the motor dry and the area around the mixer dry; never start the mixer when the beaters or whips are not attached; never overload the mixer bowl.
028 - 3. Properly mesh the gears.

029 - 1. Baking soda, damp cloth.
029 - 2. It will crack.
029 - 3. In the front.

030 - 1. Potatoes, root.
030 - 2. After each use.
030 - 3. Do not overload the peeler. Check abrasive disk. Keep hands from the machine and keep water from the motor.
030 - 4. Close and lock the outlet door.

031 - 1. Frying, boiler, griddle, range.
031 - 2. Soap, water, soft brush.
031 - 3. Make sure area is grease and water free, and stand to one side when lifting the lid.

45

AU-GAFS.ALA.(740618)4200

STOP- 1. MATCH ANSWER SHEET TO THIS EXERCISE NUMBER. 2. USE NUMBER 1 PENCIL.

62230 01 21

EXTENSION COURSE INSTITUTE
VOLUME REVIEW EXERCISE

Role of the Apprentice Cook

Carefully read the following:

DO'S:

1. Check the "course," "volume," and "form" numbers from the answer sheet address tab against the "VRE answer sheet identification number" in the righthand column of the shipping list. If numbers do not match, take action to return the answer sheet and the shipping list to ECI immediately with a note of explanation.
2. Note that numerical sequence on answer sheet alternates across from column to column.
3. Use only medium sharp #1 black lead pencil for marking answer sheet.
4. Circle the correct answer in this test booklet. After you are sure of your answers, transfer them to the answer sheet. If you *have* to change an answer on the answer sheet, be sure that the erasure is complete. Use a clean eraser. But try to avoid any erasure on the answer sheet if at all possible.
5. Take action to return entire answer sheet to ECI.
6. Keep Volume Review Exercise booklet for review and reference.
7. If *mandatorily* enrolled student, process questions or comments through your unit trainer or OJT supervisor.
   If *voluntarily* enrolled student, send questions or comments to ECI on ECI Form 17.

DON'TS:

1. Don't use answer sheets other than one furnished specifically for each review exercise.
2. Don't mark on the answer sheet except to fill in marking blocks. Double marks or excessive markings which overflow marking blocks will register as errors.
3. Don't fold, spindle, staple, tape, or mutilate the answer sheet.
4. Don't use ink or any marking other than with a #1 black lead pencil.

NOTE: NUMBERED LEARNING OBJECTIVE REFERENCES ARE USED ON THE VOLUME REVIEW EXERCISE. In parenthesis after each item number on the VRE is the *Learning Objective Number* where the answer to that item can be located. When answering the items on the VRE, refer to the *Learning Objectives* indicated by these *Numbers*. The VRE results will be sent to you on a postcard which will list the *actual* VRE *items you missed*. Go to the VRE booklet and locate the *Learning Objective Numbers* for the items missed. Go to the text and carefully review the areas covered by these references. Review the entire VRE again before you take the closed-book Course Examination.

Portions of this examination have been removed due to military specific materials.

21. (009) Sanitation is governed by regulations and measured against definite standards because

    a. the Armed Forces demands it.
    b. it is a command responsibility.
    c. of its importance to the health and morale of Air Force members.
    d. the Air Force must maintain the best overall health program in the world.

22. (009) What manual sets up the standards of food service sanitation?

    a. AFM 163-8.
    b. AFM 163-9.
    c. AFM 167-4.
    d. AFM 169-3.

23. (010) Sanitation requires constant effort on the part of everyone in the dining hall. Where does sanitation begin?

    a. Before preparing the meal.
    b. Upon entering the dining hall.
    c. With personal hygiene.
    d. Before serving the meal.

24. (010) Which of the following would tend to dull your appetite at meal time?

    a. A waitress with pride in her job and a good personality.
    b. A cashier with socially acceptable mannerisms and a clean uniform.
    c. A cook with a clean apron and shirt.
    d. A food server with a soiled apron.

25. (010) Any cut or scratch beyond those of a superficial nature should have prompt

    a. application of a bandaid.
    b. application of a compress by anyone nearby.
    c. attention by qualified medical personnel.
    d. medical attention by your supervisor.

26. (011) What are two classifications of communicable diseases?

    a. Respiratory and intestinal.
    b. Contagious and direct contact.
    c. Infectious and direct contact.
    d. Blood and skin.

27. (011) Unsanitary practices in the dining hall could result in

    a. cancer.
    b. dysentery.
    c. pneumonia.
    d. malaria.

28. (011) Which of the following insects transmit typhoid and dysentery?

    a. Flies.
    b. Fleas.
    c. Roaches.
    d. Mosquitoes.

29. (012) The supervisor's inspection involves all his food handlers and is generally conducted

a. at the beginning of each shift.
b. at the end of each shift.
c. after the meal.
d. during the meal.

30. (012) Medical inspections are necessary to insure that all foods are prepared and served by personnel that

a. have a clean appearance.
b. are free from communicable diseases.
c. have a good attitude toward food service.
d. are healthy looking from head to foot.

31. (012) Before a newly assigned airman is allowed to handle, process, or serve food, he must have a

a. first aid course.
b. finger culture.
c. blood test.
d. complete physical examination.

32. (013) The principal aim of any cleaning operation is the

a. removal of dirt.
b. categorization of dirt.
c. emulsification of dirt.
d. blending of dirt with detergents.

33. (013) Cleaning agents that are commonly used in food service operations are divided into how many classes?

a. 2.
b. 3.
c. 4.
d. 5.

34. (013) When very stubborn surface stains occur, you should

a. use a strong solution of sodium bisulfate on them.
b. soak them overnight in a scouring powder solution.
c. use a soap-grit cake or scouring powder on them.
d. consult your supervisor for advice on what to use.

35. (014) Proper cleaning of floors serves a threefold purpose: it provides the necessary sanitation; it protects the floor against undue damage and wear; and it

a. improves the morale of the cooks.
b. adds to the attractiveness of the facility.
c. prevents the spread of rodents and insects.
d. protects the dining hall from medical write-ups.

36. (014) How often should the windows be cleaned in a food service facility?

a. Monthly.
b. Twice a week.
c. Three times a week.
d. As often as necessary.

37. (015) The most common insects and rodents found in food establishments are cockroaches,

a. mice, and rats.
b. horseflies, and mice.
c. houseflies, and rats.
d. houseflies, moths, and rats.

38. (015) On an air base, who has the responsibility for setting up a rodent and insect control program?

a. Food Service Officer.
b. Veterinary services.
c. Civil engineers.
d. Medical personnel.

39. (016) Which of the following is a true safety precaution in the use of knives?

a. To insure better control of the knife, the user should palm a hard vegetable and cut toward himself.
b. Knives should be soaked clean to avoid the danger of being cut while washing the blade.
c. Knives should not be left on the work table because they may get covered up.
d. If the knife falls, the user should step aside, let it fall, and then pick if up.

40. (017) When transporting hot pans, you should use

a. wet rags.
b. napkins.
c. hot pads.
d. two spatulas.

41. (017) Which of the following is best when boiling burned food from tin or plated pans?

a. Baking soda.
b. Vinegar and scouring powder.
c. Scouring powder.
d. Lye.

42. (018) Equipment such as scrub brushes, mops, and brooms are classified as

a. utensils.
b. cleaning equipment.
c. fixed equipment.
d. handtools.

43. (019) When operating the dishwashing machine over a long period of time, the wash tank should be drained and rinsed every

a. 3 hours.
b. $2\frac{1}{2}$ hours.
c. 2 hours.
d. $1\frac{1}{2}$ hours.

44. (020) Which of the following cleaning agents are best suited for removal of food particles and sediment from the steam table?

a. Steel wool and a scrub brush.
b. Cool water and steel wool.
c. Cleaning powders and hot water.
d. Wire brush and hot water.

45. (020) What is the desired water temperature when operating the steam table?

a. 155°.
b. 175°.
c. 180°.
d. 212°.

46. (021) To remove food particles from the drawoff pipe and valves of the steam-jacketed kettle, you should use

a. a flexible wire brush.
b. a sharp knife.
c. a clean rag.
d. a steel knife.

47. (022) The gas range in your dining hall should be cleaned

a. after every meal.
b. once a day.
c. once a week.
d. after each shift.

48. (022) The standard source of fuel for the dining hall open top range is

a. coal.
b. electricity.
c. oil.
d. gas.

49. (023) The vertical steamer can be used to cook

a. only foods that are cooked in liquids.
b. only one type of food at a time.
c. meat and vegetables at the same time.
d. well packed basket foods.

50. (024) Before cleaning the slicing machine, set the thickness dial at

a. 0.
b. 1.
c. 2.
d. 3.

51. (024) When cleaning the disassembled parts of the meat slicer, the cleaning materials used are

a. steel wool and cool water.
b. hot water and soap.
c. scouring powder and steel wool.
d. wire brush and hot water.

52. (025) When operating the deep fat fryer, the first step should be to

a. fill the container with fat.
b. close the drain valve.
c. turn on the heat control dial.
d. place the food to be cooked in the deep fat fryer.

53. (026) Griddles are used for

a. baking food.
b. frying food in deep fat.
c. broiling meats that are less tender.
d. frying foods that require little or no fat.

54. (026) How should the electric or gas griddle be cleaned?

a. It should be scrubbed with hot soapy water and a stiff brush.
b. It should be scraped and if necessary cleaned with a grill stone.
c. The top should be removed and washed in a hot detergent.
d. The cooking surface should be scrubbed with oil and a wire brush.

55. (027) Which of the following materials is best for cleaning the inside of the roasting ovens?

a. Wet cloth and a sharp knife.
b. Wire brush and dry cloth.
c. Damp cloth and oven scraper.
d. Scraper and steel wool.

56. (027) Allow gas ovens to preheat for at least

a. 30 minutes.
b. 20 minutes.
c. 10 minutes.
d. 5 minutes.

57. (028) What attachment on the vertical mixer is best for mixing eggs?

a. Hook shaped.
b. Wire whip.
c. Flat beater.
d. Pastry beater.

58. (029) Stains are removed from the glass coffee bowls with

a. soap and water.
b. hot water and steel wool.
c. scouring powder and cold water.
d. baking soda and a damp cloth.

59. (030) When operating a vegetable peeler machine, the operator should turn on the water sprinkler

a. before adding the vegetables.
b. while the vegetables are being peeled.
c. after peeling to flush out the hopper.
d. only if the vegetables are quite dirty.

60. (030) How often should the peel trap of the vegetable peeler be emptied?

a. After it becomes clogged.
b. After three or four changes of vegetables.
c. After every change of vegetable.
d. At the end of the day of operation.

61. (031) Which piece of equipment in the kitchen is considered to be the most versatile?

a. Food mixer.
b. Vegetable peeler.
c. Meat slicer.
d. Tilt grill.

62. (031) The materials used in the cleaning of the tilt grill are

a. steel wool and scouring powder.
b. hot water and scouring powder.
c. hot soapy water and a soft brush.
d. hot soapy water and steel wool.

PAGES 44 & 45 ARE MISSING DUE TO A MISTAKE IN NUMBERING THE COURSE.

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CDC 62230

APPRENTICE COOK

(AFSC 62230)

Volume 2

Food Preparation, Cooking, and Serving

9-2

Extension Course Institute

Air University

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CONTENTS

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NOTE: In this volume, the subject matter is developed by a series of Learning Objectives. Each of these carries a 3-digit number and is in boldface type. Each sets a learning goal for you. The text that follows the objective gives you the information you need to reach that goal. The exercises following the information give you a check on your achievement. When you complete them, see if your answers match those in the back of this volume. If your response to an exercise is incorrect, review the objective and its text.

Principles of Cookery

YEARS AGO A person had to depend on a long apprenticeship and personal experience to master the art of cookery. Learning to cook professionally was a system of trial and error. The main reason it took such a long time for a cook to become skilled was that each cook had his own recipes and developed his own cooking procedures.

The Air Force cannot rely on such a hit-and-miss system for supplying its food service personnel. Therefore, unskilled but willing and interested Air Force personnel must be trained properly in up-to-date standardized cooking methods to meet their food service needs.

The changes required to convert cooking from a once considered mysterious art to a modern science have been going on for some years. Today, though not complete or perfect, these changes have brought about the adoption of standard cooking procedures that make training in this field a much less complicated task. Standardized cooking does not mean that every time you prepare a certain dish it must be done the same way. What it really means is that guidelines are established by food experts to judge the quality of every dish prepared. These guidelines are really descriptions of what a good product should be, what ingredients are used, and how it is prepared. From a military standpoint, the intelligent use of standardized recipes and cooking methods takes the guesswork out of quantity food preparation.

The first step in good food preparation is an accurate knowledge of fundamentals. These principles of fundamentals include, but are not limited to, such subjects as weighing and measuring, understanding cooking terms, seasoning agents, and the garnishing of food. This knowledge is gained through experience.

Every recipe carries weighing and measuring instructions. So let us begin this chapter by discussing standard weighing and measuring factors.

1-1. Weighing and Measuring

Some cooks are called guesstimaters. They are the ones who try to prepare food without properly measuring ingredients. Even the best of world renowned chefs rely upon recipe measurement instructions to prepare all their favorite dishes.

200. Identify the graduated measures of standard cups and spoons and cite the manual that covers weighing and measuring procedures.

As an apprentice cook you can become a skilled cook faster by doing as skilled chefs do; that is, use measurements to their fullest extent. Don't be a guesstimater. Weigh and measure ingredients carefully and correctly.

It is preferable to weigh ingredients if scales are available; otherwise, measure them in graduated measures, standard cups, and spoons. The standard measuring cup is of 1/2 pint or 8 ounce capacity. Cups are based on U.S. standards and are so marked. Subdivisions are marked on the cup to measure 1/4, 1/2, 3/4, 1/3, and 2/3 cup.

Measuring spoons are standardized as well as measuring cups. Sets of spoons which measure 1 teaspoon, 1 tablespoon, 1/2 and 1/4 teaspoon can be obtained. Sixteen level tablespoons are required to

fill 1 cup and 3 teaspoons are equal to 1 tablespoon.

When emergencies arise you can still obtain satisfactory results even with an unmarked utensil if you know its capacity. To do so, you will have to judge the point on the utensil that equals 1/4, 1/3, 1/2, or 1/4 full.

We suggest that you refer to the pages on weighing and measuring in AFM 146-12, *Recipes*, before you prepare a dish. Use exact weights and measurements for each recipe you use.

Exercises:

1. What are the subdivisions marked on a standard measuring cup?

2. What are the measuring graduations of standard measuring spoons?

3. _____is the publication that covers procedures for weighing and measuring.

1-2. Common Cooking Terms

Specific terms are used in all career fields to define certain procedures or methods. This is also true of the food service career field.

201. From a list of selected cooking terms, match each term with its meaning.

As you progress in your training, you will encounter many terms that may seem strange to you. These terms are used in your field to define certain procedures or methods. Listed below are a few of the terms you should become familiar with:

Bake	Cook in an oven with dry heat. The term is usually applied to oven cooked foods; but baking may be done on hot metal, the baking of pancakes or waffles, for example.
Beat	Use a fast, rotary, over and under movement to incorporate air into a product. Most commonly used in egg cookery or products containing eggs.
Boil	Cook in a liquid that has been brought to a boiling point.
Braise	Brown food in a small amount of fat, and add small amounts of liquid at a time; simmer gently until tender.
Bread	Coat with a mixture, such as dipping in beaten eggs and then in bread crumbs.
Broil	Cook over or under direct heat or open flame.
Broth	Liquid in which food has been cooked.
Coat	Completely cover the outer surface of any food with any coating agent such as flour.
Deep Fat Fry	Cook any food in a deep fat medium.
Fry	Cook any food in a small amount of fat.
Garnish	Add accessory to any food product for color and eye appeal.
Leavening	Any ingredient which when added to a product will cause it to rise during cooking. Refers to such agents as baking powder, yeast, or soda.
Roast	Cook with dry heat in an oven with fat side of meat up making it self-basting.
Roux	Cooked mixture of fat and flour.
Sauté	Cook in a small amount of fat on top of the stove.
Score	Cut shallow slits in a food item, across the top, or in a pattern. Allows larger surface areas for extraction of natural fats and enhances eye appeal of the product.
Simmer	Cook at or just below the boiling point.
Steam	Cook over water or in a steam-jackered kettle where the cooking medium is steam.
Stew	Cook in a liquid held at simmering temperature.
Stock	Liquid in which meat, bones, fish, poultry, and/or vegetables have been cooked. Used as basic ingredient for soups, gravies, and sauces.

Exercises:

Match the cooking term in column A with its appropriate meaning in column B. Place the letter of the cooking term in front of its meaning.

Column A	*Column B*
a. Broil ____	]. Cook in a liquid that has been brought to a boiling point.

b. Boil _____2. Cooked mixture of fat and flour.

c. Fry _____3. Add accessory to any food product for eye appeal.

d. Stew _____4. Cook any food in a small amount of fat.

e. Roux _____5. Cook in a liquid held at simmering temperature.

f. Garnish _____6. Cook over or under direct heat or open flame.

1-3. Seasoning Agents—Herbs and Spices

The object of seasoning is to enliven or enhance the flavor of the food we are preparing. Care must be taken to avoid overseasoning or underseasoning. When we say "season to taste," we don't mean season to your taste, but season to the taste of those who will eat the product. This means that you must use an average amount of seasoning—neither too much nor too little.

202. Given a list of herbs and spices, match each with the statement that most clearly defines it.

Herbs and spices, when fresh, contain aromatic oils that are strong, and they should be used sparingly. Also, it is a good policy never to use more than two highly flavored seasonings in any one meal. Remember that most herbs lose their flavor during long cooking periods. To avoid loss of flavor, add the herbs during the last phase of cooking.

The following paragraphs describe some of the more common herbs and spices you will come in contact with during food preparation.

Allspice is cultivated in Mexico and the West Indies, particularly Jamaica. It is a pea-size fruit that grows in small clusters on a tree. Its uses are: whole—gravies, pickling meats, and broiling fish; and ground—baking, puddings, relishes, and fruit preserves.

Bay leaves, which are grown in the Mediterranean countries, principally in Asia Minor, are dried leaves of an evergreen tree. Their use is for pickling, stews, spice, sauces, and soups.

Cayenne pepper is grown mainly in Africa. It is a small red pepper, finely ground for export, used in meats, sauces, fish, and egg dishes.

Celery seed, imported from India and Southern Europe, is a minute, olive-brown seed obtained from the celery plant. It is excellent in pickling, salads, fish, salad dressings, and vegetables.

Chili powder is made from Mexican chili peppers and blended seasonings (usually oregano, cumin, and garlic salt). It is the basic ingredient for Mexican cooking.

Cinnamon is from Ceylon. It is the aromatic bark of the cinnamon tree. Whole cinnamon is used in pickling, preserving, and flavoring puddings and stewed fruits. Ground cinnamon is used in baking goods, mashed sweet potatoes, and with sugar for cinnamon toast.

Cloves are from East Indies, Madagascar, and Zanzibar. They are a fruit (dried flower buds) of a tree belonging to the evergreen family. Cloves are used for pork and ham roasts, stews, and vegetables.

Garlic is much esteemed in southern Europe and is grown extensively. This is the most strongly flavored of the plants in the allium family and is used as a condiment for seasoning other foods.

Onions are cultivated over large areas in temperate and tropical climates. This plant of the lily family has a strong odor, and is very highly valued for the flavor it gives to other foods.

Oregano is native to Italy and Mexico. Oregano is a good flavoring for pork dishes and a fine seasoning for stews, sauces, and gravies.

Paprika is grown chiefly in Spain, Hungary, and the United States. Paprika is a sweet red pepper, ground after the seeds and stem have been removed. It is used as a colorful red garnish for any pale food.

Parsley is a widely cultivated garden plant with curley leaves used as a seasoning.

The chief sources for *pepper* (black and white) are India and Indonesia. It is a small dried berry of a vine. Pepper is the world's most popular spice. Pepper is used in just about all foods.

Poultry seasoning is a mixture of herbs and spices. It is used for poultry, veal, pork, and fish stuffings.

Sage comes from Yugoslavia and Greece. Sage is a shrub about 2 feet high. It is particularly good with pork and pork products. It is also used in stuffings and sausages.

Thyme is grown in temperate climates, such as southern Europe. Thyme is a low shrub about a foot high. It is used for stews, soups, and poultry stuffings.

Exercises:

Match the terms in column A with the most appropriate meaning in column B by writing the correct letter in the blank provided.

Column A	*Column B*
_____1. Cloves	*a.* Basic ingredient in Mexican cooking.
_____2. Pepper	*b.* World's most popular spice.
_____3. Thyme	*c.* A colorful garnish.
_____4. Chili powder	*d.* Fruit of a tree belonging to the evergreen family.
_____5. Paprika	*e.* A low shrub about a foot high.

COOK'S WORKSHEET ☐ BREAKFAST ☐ SUPPER ☒ DINNER ☐ MIDNIGHT MEAL | DINING HALL NO. 3 | INSTALLATION: LOWRY AFB, CO. | NO. TO PREP FOR: 550 | DAY OF WEEK: FRIDAY | DATE: 30 Nov 72

MENU (Including leftovers from previous meals which are to be served) A	NAME OF INDIVIDUAL RESPONSIBLE FOR PREPARATION B	QUANTITY TO BE PREPARED C	RECIPE NO. OR MENU OR IN AFM 146-13 D	TIME: PREP TO START E	TIME: COOKING TO START F	SIZE OF PORTION TO BE SERVED INDIVIDUAL G	LEFTOVERS: USE (within 24 hours) H	LEFTOVERS: DISCARD I	REMARKS (Use of leftovers, portions short, reason for excessive amount of leftovers) J
CHICKEN NOODLE SOUP		22#2 1/2CN	-	0830	0900	1-Bowl	5-glns	-	Reheat and serve from transient line
SALTINE CRACKERS		6LBS	-	1020	- -	Self Service	-	-	Use an additional 3 lbs of crackers
ROAST BEEF (Cook in 2 batches)		120 LBS	L-5	0630	0700	4 1/2 OZ	15-lbs	-	Stored in walkin reefer use 12/1/72
SOUTHERN FRIED CHICKEN		175 LBS	L-137	0800	0900	6 OZ	-	-	Use 12/1/72, short order
NATURAL GRAVY		8 GALS	O-18	0925	0940	2-3 OZ	2-glns	-	stored in reach-in refri
BUTTERED W/G CORN		8#10 CN	Q-27	0930	0940	4 OZ	-	-	Use lima beans at supper
CREOLE LIMA BEANS		20 LBS	Q-6	0900	0915	4 OZ	5-lbs	-	meal 11/30/72
BUTTERED GREEN BEANS		30 LBS	Q-7	0915	0930	4 OZ	10 lbs		Use 11/30/72, supper
ASSORTED SALADS		550 SALADS		0800	- -	1 Salad	50 Salad	-	Utilize, supper 11/30/72
ASSORTED DRESSINGS		4 GALS		0900	- -	1-2 OZ	1/2gln	-	Stored in reach in refri
APPLE PIE		25 PIES	I-8	0100	0200	1 Slice	3-pies	-	Use early chow 11/30/72
ICE CREAM		10 GALS		1030	- -	Self Ser	-	-	5 additional used
CHOCOLATE FUDGE BROWNIES		1 RECIPE	H-2	0330	0400	1 Slice	25-ser	-	utilize on transient lin
PEACH SHORT CAKE		4 RECIPE	G-16	0230	0300	1 Slice	-	-	Returned 8 lvs white bre
ASSORTED BREADS		78 LVS		1015	- -	2 Slices	8-lvs	-	to store room
BUTTER		32 LBS		1000	- -	2 Cubes	1/2 lb	-	Utilize in buttered asparagus, supper, 11/30
CHOCOLATE MILK		18 GALS		1020	- -	8 OZ	-	-	all consumed by troops
WHITE MILK		48 GALS		1020	- -	8 OZ	-	3-glns	Loss due to loading oper of milk dispenser.
TEA BAGS		1 BOX	C-12	1030	- -	Self Service	1/2 box	-	Use supper meal 11/30/72
FRESH HOT COFFEE		6 LBS	C-3	0945	1000	8 OZ	3-glns	-	Utilize at cooks' and KPs' afternoon break

SPECIAL INSTRUCTIONS TO COOKS AND ADDITIONAL REMARKS, IF ANY (Continue on reverse, if necessary)

1. Roast the beef at 325 degrees for best yield.
2. Maintain cooked food items on the hot serving line at a temperature; 140 to 160 degrees
3. Maintain cold food items on the cold serving line at a temperature below 40 degrees.
4. Start cooking second batch of roast at 0930.
5. Use 60-lbs of frozen peaches for shorty cake.

SALADS	Amount	RECIPE
Fruit Salad	200 ea.	M-17
Sliced Tomato	100 ea.	-
Cucumber & Onion	100 ea.	M-15
Cole Slaw	100 ea.	M-8
Lettuce Wedges	50 ea.	M-31

DRESSING	AMT	RECEIPE
1,000 Isle	1 gln	M-70
French	1 gln	M-58
Garlic	1 gln	M-60

BREAD	AMT
White	66 lvs
Wheat	6 lvs

DINING HALL SUPERVISOR'S SIGNATURE: James Hooten | FOOD SERVICE OFFICER'S SIGNATURE: Barney Hacking

AF FORM APR 71 679 PREVIOUS EDITION WILL BE USED.

Figure 1-1.

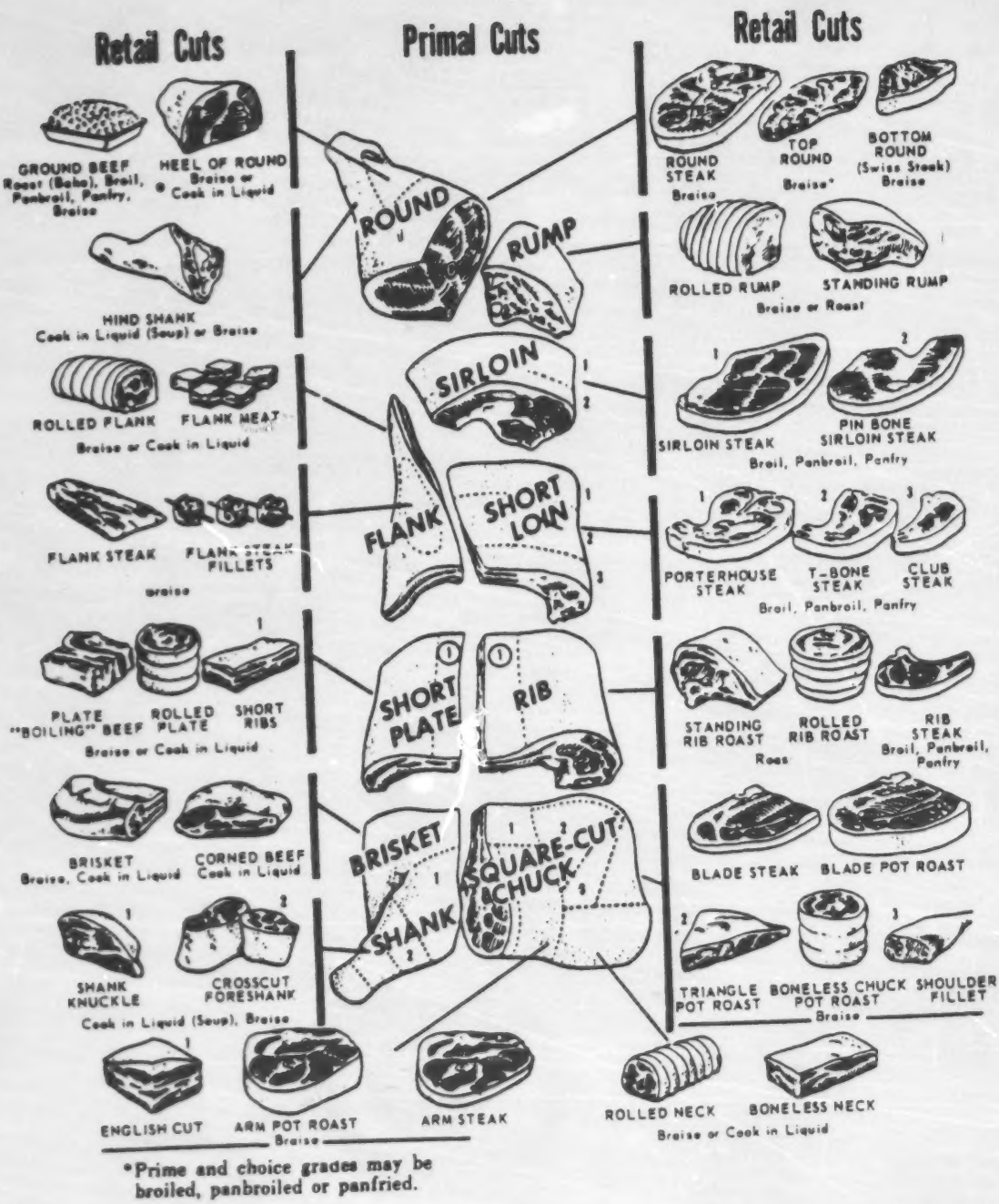

Figure 1-2. Beef cuts, wholesale and retail.

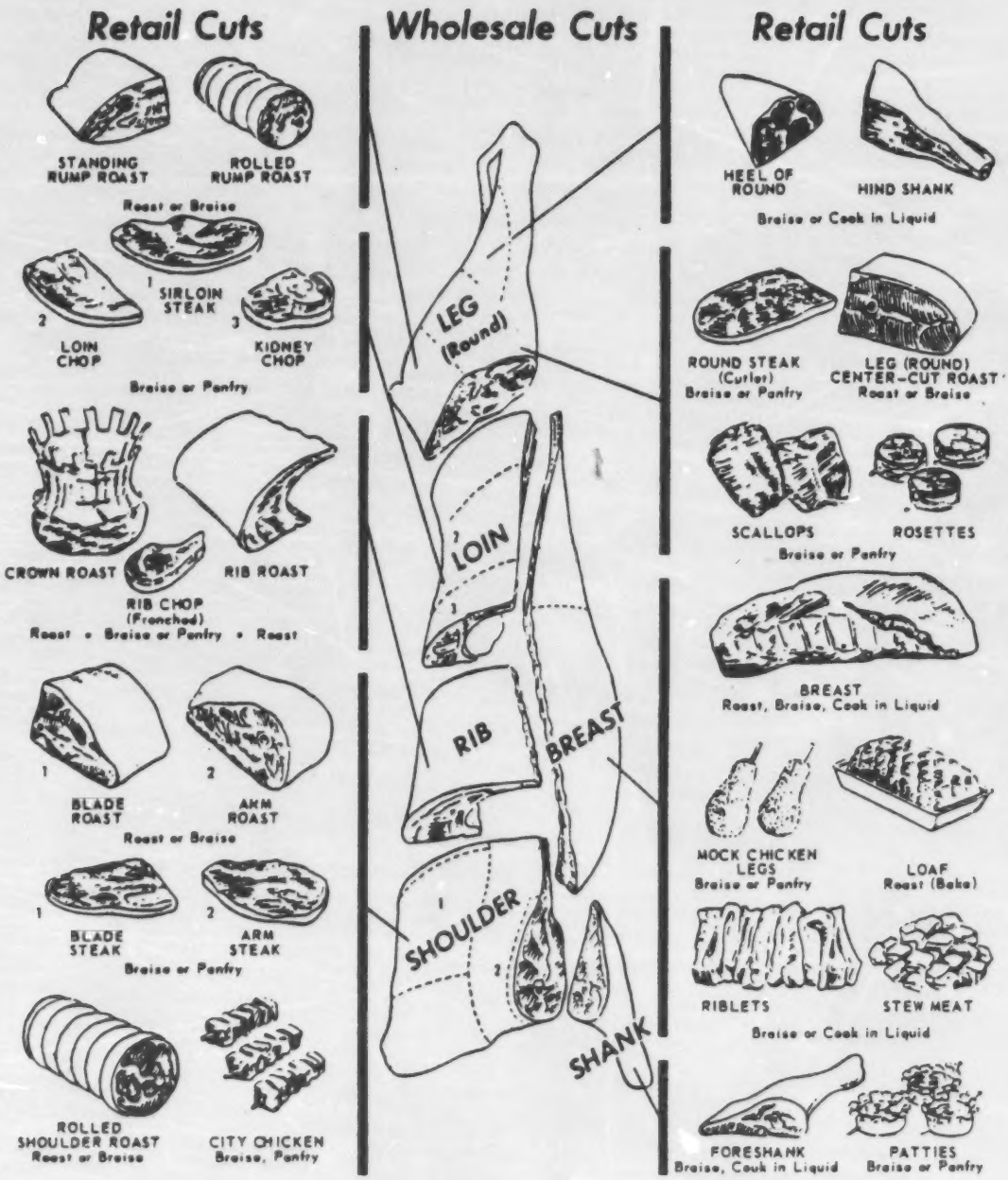

Figure 1-3. Veal cuts, wholesale and retail.

Figure 1-4. Pork cuts, wholesale and retail.

1-4. Cook's Worksheet

The cook needs a document to inform him of the item he is assigned to prepare, what recipe he is to use, how many servings he is to prepare, and what time he is to start cooking or serving the food. The document he uses is AF Form 679, Cook's Worksheet.

203. State the purpose of AF Form 679 and the responsibilities associated with its maintenance.

AF Form 679 is used by food service personnel in planning, preparing, cooking, and serving meals. The dining hall supervisor prepares a separate form for each meal. A completed AF Form 679 is shown in figure 1-1. For the most part the form is self-explanatory. When completed properly, it serves as a precise guide for menu items, along with special cooking instructions, preparation and cooking times, and quantities to be used. After the form is signed by the dining hall supervisor and food service officer, it is placed in a conspicuous place for ready reference.

Exercises:

1. What is the purpose of AF Form 679?

2. Who is responsible for preparing the Cook's Worksheet?

3. A separate AF Form 679 is prepared for each
   a. day.
   b. week.
   c. meal.
   d. month.

1-5. Identification of Meats, Seafood, and Poultry

To properly prepare meats, seafoods, and poultry, you should know how to distinguish them from each other.

204. From a list of statements and phrases, identify beef, veal, and pork.

As we have already pointed out, to cook meat properly you must first learn to identify a meat cut. You start by either classifying it as beef, veal, or pork.

Beef. Beef is the flesh of mature cattle at least 1 year old. The best beef is produced by steers under 3 years of age, which are bred purely for meat producing purposes and subsist chiefly on a grain diet.

Figure 1-2 shows some of the cuts of meat produced from beef. Note that all primal cuts are named and arranged on the chart exactly as they make up the animal carcass. The two retail cut columns that flank the primal cuts are partially outlined to show the cooking sized portions as they are related to the primal cuts. The term "primal cuts" refers to the first cuts made by a meat cutter.

Veal. Veal is the flesh of young calves. In comparison with beef, veal has a higher water content, is lower in fat and extractives (juices), and contains a relatively high percentage of connective tissues. This has a pronounced bearing on the cooking of veal, which will be discussed later in this chapter. Figure 1-3 shows some of the cuts that you receive from veal.

Pork. Pork is low in juices. Its typical flavor is due largely to fat imbedded in the flesh. The composition of pork is determined by two factors—color and quality. The color of young pork is grayish pink, changing to a delicate rose in older animals. Quality of pork is relatively firm and fine grained and free from excess moisture. The lean portion is well marbled and covered with firm white fat. Some of the pork cuts are shown in figure 1-4.

Exercises:

Identify the statements below as pork, veal, or beef, by placing pork, beef, or veal in the spaces provided.

_____1. Mature cattle at least 1 year old.
_____2. Flesh of young calves.
_____3. Lowest in juices.
_____4. Mock chicken legs are derived from this animal.
_____5. T-bones, porterhouse, and club steaks are derived from this animal.
_____6. Bacon is produced from this animal.

205. From a list of statements identify classes of poultry.

Proper poultry cooking requires the knowledge of the class of poultry you are preparing. The classes that follow apply to dressed poultry and individual carcasses of ready-to-cook poultry. When we speak of ready-to-cook poultry we are referring to birds that have been bled, picked, and eviscerated (head, feet, and inedible organs removed).

Chickens. A broiler or fryer is a young chicken usually under 16 weeks of age; it can be of either sex. It is tender-meated with a soft, pliable smooth-textured skin and flexible breastbone cartilage. The age of a chicken can be determined by applying pressure to the end of the breastbone. In the young

poultry the breastbone is flexible; in older birds it is rigid and firm.

A roaster is a young chicken, usually under 8 months of age, with all the same features as broilers and fryers. However, the breastbone cartilage is somewhat less flexible than that of a broiler or fryer.

A capon is an unsex male chicken, usually under 10 months of age, that is tender-meated with soft, pliable, smooth-textured skin.

A hen or stewing chicken is a mature female bird, usually more than 10 months of age, with less tender meat than that of a roaster. It has a non-flexible breastbone.

Turkeys. A frying turkey is a young, immature bird of either sex, usually under 16 weeks of age. It is tender-meated with soft, pliable, smooth-textured skin, and has a breastbone cartilage that is flexible to the touch.

A young hen turkey is a female, usually under 8 months of age, that is tender-meated with soft, pliable, smooth-textured skin, and a breastbone cartilage that is somewhat less flexible than that in a frying turkey.

A young tom turkey is a male, usually under 8 months of age, having the same skin and flesh characteristics as those in the young hen turkey.

Exercises:

From the statements concerning classes of poultry, identify each as either True or False.

_____1. A roaster is a young chicken usually 16 weeks of age.
_____2. A capon is an unsex male chicken usually under 10 months of age.
_____3. A hen or stewing chicken is a mature female bird.
_____4. A tom turkey is a female usually under 8 months of age.

206. From a list of statements identify classes of seafood.

Seafood is classed as finfish and shellfish. A finfish is an animal that has a spine, gills, and in most cases, scales. Trout, bass, salmon, and catfish are common examples. Shellfish are edible, spineless animals protected by a shell. Shrimp, oysters, clams, and lobsters are prominent members of the shellfish family.

Finfish. The two principal forms of finfish served in the dining hall are fresh frozen and prefabricated frozen. The reason the Air Force consumes more frozen seafood is that it can be handled, stored, prepared, and cooked easily. Fish steaks, which are cross sections or cuts of a large dressed fish, and fish fillets, which are practically boneless meaty sides of fish cut lengthwise away from the backbone, are served to military personnel. Fresh fish should arrive in the dining hall in a frozen state, without signs of thawing and refreezing, and they should be kept solidly frozen until ready for use.

Shellfish. The two classes of shellfish you will use in the Air Force are mollusks and crustaceans. Probably the only mollusks you will get are the bivalves (two-shell), such as oysters, scallops, and clams. Lobster, shrimp, and crab are crustaceans.

Exercises:

Identify the following statements concerning seafood as either True or False:

_____1. Seafood is classed as finfish and shellfish.
_____2. The two forms of finfish served in the dining hall are fresh frozen and live.
_____3. The two classes of shellfish you will use in the Air Force are mollusks and crustaceans.
_____4. Lobster, shrimp, and oysters are crustaceans.

1-6. Cooking Methods

To cook is to expose foods to the action of heat in order to make them more digestible. There are various ways of applying heat to foods. The method used depends a great deal on whether the item is tough or tender. If the item is tough, a lengthy cooking period is required to make the item more appetizing and digestible. If the item is tender, a faster cooking measure is used.

Cooking is performed by two basic methods—dry heat and moist heat. One of these is used regardless of the product cooked, be it meat, vegetable, or poulty.

207. Given certain dry-heat cooking methods, match each with its definition.

Dry-Heat Cooking Methods. When cooking with dry heat, no liquid is added. In most cases the product itself supplies enough fat and/or juices to keep it from burning. Dry heat is used when cooking tender cuts of meats, fish, young poultry, some types of vegetables, and most pastry and bread products. Dry-heat cooking procedures are explained in the following paragraphs.

Roasting, one of the more popular cooking procedures, is done in an oven. The food being roasted must be kept uncovered; otherwise the food will steam. The term "roasting," although essentially the same as baking, generally applies to meat items, while baking applies to fish and dough products.

Broiling is cooking by direct heat over coals or under gas flame or electric heating unit. This cooking procedure is used mainly in the preparation of meat, poultry, and fish. It is a very

quick and simple method, but is limited to the cooking of very tender meat cuts, such as steaks and chops.

Pan or griddle broiling is cooking on top of the range in a pre-heated frying pan or on a griddle, using for grease the fat of the meat itself.

Pan frying is done with just enough added fat (grease) to cook the food. Only certain foods are adapted to pan frying. Don't use this cooking method unless it is prescribed by the recipe.

Deep-fat frying is cooking food by completely covering it with hot fat. In deep-fat frying, foods are cooked quickly enough to prevent their absorbing any of the cooking fat. Holding the cooking fat at the correct temperature is very important when using this method. Too high a temperature causes the product to become hard and dry; too low a temperature allows the product to absorb the cooking fat.

Exercises:

Match the dry heat cooking method with the definition that best describes it. Place the letter in column B along side the term in column A.

Column A	*Column B*
___1. Roasting	*a.* Cooking food by completely covering it with hot fat.
___2. Broiling	*b.* Cooking food with just enough fat to cook the food.
___3. Pan or griddle broiling	*c.* Cooking by direct heat over coals, under gas flame, or electric heating unit.
___4. Pan frying	*d.* Cooking on top of the range, using for grease the fat of the meat.
___5. Deep fat frying	*e.* One of the more popular cooking procedures done in an oven.

208. Identify moist-heat cooking methods by matching each with its proper description.

Moist-Heat Cooking Methods. Moist-heat cooking is the process of cooking the food in a liquid, usually water. The moist-heat cooking methods described in the following paragraphs are generally used for less tender cuts of meat and for most vegetables.

Simmering is cooking in liquid that is held just below the boiling point. When the temperature is right for simmering, the bubbles of steam that rise from the bottom of the container disappear before reaching the surface of the water.

Braising is similar to simmering. The food is first browned in a small amount of fat and is then simmered in a liquid until done. Braising provides long, slow cooking and is recommended for the less tender cuts of meat.

Boiling is the heating of a liquid until it bubbles; the bubbles rise to the surface and pass off in the form of steam. Cooks must remember that high or violent boiling will not cook foods better or faster than a slow boil. It is a waste of fuel. The liquid is the same temperature either way.

Steaming is cooking food in the steam produced from boiling water or other liquids. This is an excellent way to cook most vegetables and foods of high starch content.

Pressure cooking is done in a tightly closed, specially constructed cabinet or container that does not allow steam to escape. Steam builds up pressure in the cooker and provides a moist heat above the boiling temperature. The temperature is controlled by the amount of pounds pressure allowed to accumulate.

Exercises:

Match the moist-heat cooking method with the statement that most nearly describes it. Place the letter in column B in front of the term in column A.

Column A	*Column B*
___1. Simmering	*a.* Food is first browned in a small amount of fat.
___2. Braising	*b.* Cooking in liquid that is held just below the boiling point.
___3. Boiling	*c.* Heating of a liquid until it bubbles.
___4. Steaming	*d.* Food is cooked in a tightly closed container.
___5. Pressure cooking	*e.* This way is excellent in the preparation of vegetables and food of high starch content.

1-7. Meat Cookery Factors

From the result of modern research, basic methods of meat cookery have been developed. As we have already pointed out, certain methods are adapted to cooking tender meat cuts; others to cooking less tender cuts.

Normally, tender cuts are best cooked by dry-heat methods; that is, by hot air in an oven, radiant heat in a broiler, or on a hot griddle. Some tender cuts of meat may be pan or deep-fat fried. Frying is an excellent way to prepare breaded meat products (chops, croquettes, etc.).

Less tender meat cuts are made tender by moist-heat methods of cooking. The meat is surrounded or covered by hot liquid or is subjected to steam or steam pressure.

There are a few exceptions to this rule of dry heat for the tender cuts and moist heat for less tender cuts. For example, certain inherent texture and flavor characteristics of tender veal and pork cuts make braising (moist-heat cooking method) an excellent way to prepare them.

209. Identify the factors that affect meat cookery.

In large quantity meat cooking, there are a number of factors that must be considered in addition to the cooking method to be used. These factors are:

- Type and grade of meat to be prepared.
- Size of cuts and total amount prepared at one time.
- Number of cuts or pieces to a pan.
- Oven or griddle load.
- Equipment used.
- Frozen or fresh product.
- Time available to prepare the product.

You will notice in our discussion of factors affecting meat cookery that we do not cover type and grade of meat. Since knowledge of types and grades of meat is basic to the factors, it is discussed in detail in Section 1-8.

Size, Shape, and Style of Cut. Usually the larger the cut of meat, the longer the total cooking time required. A flat roast, however, will cook in less time than a chunky one of the same weight. Since the distance from the outside to the center of the meat is less in the flat roast than in the chunky one, less time is required for the heat to penetrate.

From a style-of-cut standpoint, standing rib roast will cook in considerably less time than if the same roast was boned and rolled. The reason is that in boning and rolling the roast, the distance from the outside of the roast to its center has been increased. The removal of bones, which act as heat conductors, also contributes to the cooking time variance. As much as 5 to 10 minutes per pound additional time may be necessary to cook rolled roast as compared to cooking the same roast with the bones left in.

Number of Cuts Per Pan. The number of meat cuts placed in the roasting pan has a bearing on the time required to cook the product. Meat cuts, especially roast, should be evenly spaced in the pan, sufficient space between each cut being allowed so that the hot air can circulate freely. Overloading a griddle not only increases the cooking time but may produce partially cooked products because of the overlap.

Oven Load. Load the oven evenly. Keep the pans from touching the sides or back of the oven and leave at least one-fourth inch space between pans for proper circulation of hot air in the oven. The more meat placed in the oven at one time, the greater the cooking time.

Equipment. The type and condition of available equipment must be considered in the preparation of meat dishes. A cook cannot produce a good roasted product if his ovens will not retain the proper meat-roasting temperature.

Frozen Products. When cooking meat in a frozen state, do not crowd roasts in the pan or overload the griddle. Putting too much frozen meat into ovens or on griddles lowers the temperature rapidly, and the time needed for recovery is excessive. When cooking frozen meats, allow for a longer cooking time.

Cooking Time Available. In many cases, the cooking time available is the deciding factor when choosing the meat cooking method to be used. For example, because of temporary equipment breakdown or power failure, you cannot roast the meat for a particular meal in the time allotted. In this case, you can still produce a very acceptable product by cooking the meat in a pressure cooker or steamer. Pressure cooking reduces the cooking time of most meats by two-thirds.

Exercises:

1. The cooking time is (longer/shorter) for a large cut of meat.

2. Why should meat cuts be evenly spaced in a pan?

3. When a larger quantity of meat is placed in a pan at one time, what effect does this have on cooking time?

4. What must be considered in the preparation of meat dishes?

5. Putting too much frozen meat into an over or on a griddle does what to the temperature?

6. What is an important factor to consider when choosing the cooking method to be used?

1-8. Types and grade of meat

You will need to know the types and grades of meat used by the Air Force in order to use the proper cooking methods. You will also need to understand the types and grades of poultry and seafood.

210. Identify the characteristics of beef and veal, statements relating to each.

Beef. Different cuts and grades of beef vary greatly in tenderness. For this reason, it is necessary to adapt the cooking method to the cut issued. All of the thick cuts of better grades of beef, except the outside round, chuck, neck, and shank, are tender enough to be cooked by dry heat, especially if low temperatures are used. On the other hand, few cuts of low-grade beef can be properly prepared by dry heat.

Less tender cuts are from muscles that do a lot of work and have a high ratio of connective tissue. Less tender cuts of beef are outside round heel, flank, shank, shoulder clod, neck, chuck tender, plate, and brisket. These cuts are best suited for stews, pot roast, and ground meat dishes.

Veal. In cooking veal, you must consider two inherent characteristics: (1) lack of fat and (2) abundance of connective tissue. Veal muscle is tender because it is flesh of a young animal, but it contains considerable connective tissue and therefore requires long, slow cooking to make the whole cut tender. It formerly was thought that veal could not be cooked by true roasting because of this fact; however, experiments have shown that if you use a constant temperature of 300° F., you may roast veal successfully.

Veal should not be broiled or pan-broiled because it is lacking in fat and because of the great amount of connective tissue, which requires long, slow cooking in moist heat to make it tender. Braising produces a good product, as does the stewing of less tender cuts of veal. Whatever cooking method you use, remember that veal should be cooked well done.

Exercises:

Identify the following statements about beef and veal as True or False.

_____1. Less tender cuts are from muscles that do a lot of work and have a high ratio of connective tissue.

_____2. Tender cuts of meat are outside round, heel, flank, and neck.

_____3. In cooking veal, two inherent characteristics must be considered: (1) lack of fat and (2) abundance of tissue.

_____4. Veal muscle is tough because it is the flesh of a young animal.

_____5. Veal should be broiled or pan-broiled.

211. Identify the techniques involved in preparing ham and fresh pork

Ham. Commercial, domestic, or regular cured hams have a low-salt content, and may be cooked without parboiling or soaking. Bone may be left in or removed before cooking, according to how the ham is to be used.

Hams should be cooked well done, but you must guard against over-cooking, which results in a high percentage of waste through shrinkage. Canned whole hams are ready to eat when you remove them from the can. Slice for sandwiches or serve as the main course. Thin sliced ham is most desirable. Slicing ham thin across the grain shortens the muscle fibers and makes it easier to chew.

Fresh pork. Fresh pork is cooked in the same way as fresh beef, except that a lower temperature is used and cooking time is longer per pound. Pork must always be cooked well done. This is to insure that any worms, known as trichinella spiralis, are killed before the meat is eaten. If you use a meat-cooking thermometer properly placed in the pork, you can be sure of a well-done roast.

The percentage of shrinkage when you cook pork is high because of its high fat content, but by watching the cooking temperature you can hold the shrinkage to a minimum. Always check your recipe in AFM 146-12 for detailed instructions before you prepare any meat item.

Exercises:

Identify the following statements about ham and fresh pork as True or False:

_____1. When cooking ham, the bone may be left in or removed.

_____2. Ham should be cooked well done.

_____3. Pork can be cooked rare, medium, or well done.

_____4. When cooking pork, the temperature should be higher and the cooking time shorter per pound than when cooking beef.

212. Identify the procedures to follow in preparing poultry and seafood.

Poultry. Poultry may be prepared in a number of ways, depending on the age and size of the bird. Young chickens may be broiled, fried, or roasted. Older birds should be prepared as fricassees, stews, etc. Young birds are cooked by the dry-heat

method. Only the youngest, tender birds may be used for broiling. When deep-fat frying, be sure not to overcook the birds; overcooking dries out the meat.

The moist-heat method is used for older birds. Because of their toughness, steam is needed to tenderize the muscles.

Seafood. Dry heat methods of cooking are generally used in the preparation of fin fish. Cooking time depends on the thickness of the fish and the type of preparation. Overcooking fish makes it tough or dry. As the fish cooks, you can test it from time to time by pressing it lightly with a fork. If the muscle fibers separate into flakes, it is done.

Shrimp are generally boiled in water, either before or after shelling. Only a short cooking time is needed for shrimp. They will turn pink when cooked.

Oysters can be fried, simmered, or baked in a casserole. They should be fried only until light brown. When simmering or preparing a casserole, heat only to the boiling point; then turn off the heat.

When you are preparing poultry or seafood, be sure to consult recipes for detailed instructions.

Exercises:

1. Poultry may be prepared in a number of ways, depending on the _____ and _____ of the bird.

2. The _____ _____ method is used for older birds.

3. _____ _____ methods of cooking are generally used in the preparation of fin fish.

4. How do you test fish to see if it is done?

1-9. Vegetables and Fruit

The nutritive value of fruits and vegetables is important to the human diet and daily food requirements. Proper preparation and cooking transforms the structure and texture of vegetables and fruit, making them more desirable and attractive in appearance.

213. Identify certain factors and methods used in preparing fresh, frozen, and canned vegetables.

Vegetables. The food value of any vegetable depends upon two factors: the way it is prepared and the nutrients that have been preserved. Three methods are most commonly used in the preparation of vegetables—baking, steaming, and cooking in a liquid. The following paragraphs give you certain measures to follow when preparing different types of vegetables.

Fresh vegetables. The first step in the preparation of fresh vegetables is to wash them thoroughly and remove all unusable portions. When peeling vegetables, always remember that most of the food value is concentrated next to the skin; for this reason keep the peeling as thin as possible. Keep vegetables under refrigeration or in a cool place until ready for preparation.

The process of cooking fresh vegetables is very important. Have the water boiling before the vegetables are added. Then bring the water back to a boil and reduce the heat and simmer. Always cook vegetables in the shortest time possible, using as little water as possible. The following steps conserve valuable vitamins and minerals: (1) Cook vegetables until tender; it is better to undercook vegetables than to overcook them. (2) Remove vegetables from water as soon as they are cooked, since soaking destroys vitamins. With the exception of cabbage, cauliflower, brussel sprouts, and turnips, all vegetables should be covered while cooking.

Frozen vegetables. Frozen vegetables are used to a great extent today. They require less preparation and cooking time and also have less waste.

Most frozen vegetables do not require thawing before being cooked. They may be placed directly into boiling salted water. Break tightly frozen packages into smaller pieces to speed the thawing when they are added to the boiling water. After the vegetables have been added to the boiling water, bring the water back to a boil, reduce the heat, and simmer until done. Cooking time begins when the water comes to a boil after the vegetables have been added. The same general rules apply to both fresh and frozen vegetables.

Canned vegetables. Most canned vegetables have been precooked and need only to be heated before serving. Excessive prolonged heating destroys nutritive value, decreases palatability, and ruins the appearance of the vegetables. Prepare canned vegetables in small quantities just before serving.

Exercises:

1. The food value of any vegetable depends upon what two factors?

2. What are three methods most commonly used in preparing vegetables?

3. Always cook vegetables in the_____time possible, using as _____ water as possible.

4. What are three factors to remember when heating canned vegetables?

214. Identify the procedures to follow in preparing fruit.

Fruit. Fruit may be used in many ways. In addition to being served fresh, fruit can be made into pies, salads, and desserts. The people you are serving will not tire of fruits, especially if they have a little variety. From the standpoint of health, fruit contains vitamin C and large amounts of other vitamins and minerals. Such fresh fruits as apples, pears, oranges, and plums should be served often and in their original form.

When fruit must be pared and cut for cooking, don't pare it until immediately before cooking. If served raw, do not pare until just before serving. Pared fruit loses moisture and becomes discolored if it is exposed to the air for any long period of time. When it is necessary to pare fruit in advance of meal time, cover the fruit with a thin syrup or lemon juice to prevent discoloration. Pare fresh fruit as thin as possible, since most of the food value is located near the skin.

The use of frozen fruit saves time and effort on the part of the cook, because the fruit is ready for cooking or serving right out of the package. Frozen fruit should be kept frozen until just prior to use; otherwise it will change color, become soft, and lose its flavor. Some frozen fruits have to be sweetened with sugar before serving. The amount of sugar required depends on the type of fruit and individual tastes. It is a good idea to sweeten sour fruit lightly in the kitchen and let the consumer sweeten it to his taste.

Canned fruit has the greatest nutritive value if consumed immediately after it is removed from the can. When fruit must be stored after removing it from the can, the syrup should cover the fruit, and it should be placed under refrigeration. Canned fruits can be served in many ways, and since a variety is always available there is no reason for a person to become tied to the way it is prepared.

Exercises:

1. Frozen fruit should be kept _____until just prior to use.

2. Why is it necessary to cover pared fruit with lemon juice or a thin syrup?

3. Fruit should be pared just before serving because it loses _____and becomes _____if exposed to air for a long time.

4. Where is most of the food value located on fresh fruit?

1-10. Garnishing Food

Garnish is a decoration added to food. Although designed primarily to improve appearance, in most cases, it also adds food value. The science of garnishing when mastered by a cook raises him out of the run-of-the-mill class to a culinary position of esteem.

215. State some of the guides to effective food garnishing.

Food must appeal to the appetite, and food that has an attractive appearance is always the most satisfying. The appetite may be stimulated, or a very common dish made appetizing, by the use of a garnish that offers the interest of color and design.

Listed below are some practical guides to effective food garnishing.

- *Use restraint in garnishing.* Keep a picture of the whole meal in mind.
- *Don't get carried away* trying to add a garnish to every food item.
- *Vary food garnishes.*
- *Don't let garnishes become monotonous* by leaning too heavily on the well-worn parsley sprig, sliced stuffed olive, and maraschino cherries.
- *Plan garnishes ahead.*
- *Plan simple garnishes.*
- *Don't sacrifice timely preparation* for the sake of garnishing.
- *Take advantage of contrast in natural colors of food.*
- *Don't rely too frequently on food coloring* to supply color contrast.

There are many food items that can be used for garnishing. Examples include raw vegetables—carrot, cucumber, green pepper; fresh fruit—apples, avocadoes, grapefruit, bananas, oranges.

Exercises:

1. Garnish is primarily a (decoration/seasoning agent) added to food.

2. Food that has an attractive appearance is always the most (expensive/satisfying).

3. You (should/should not) plan garnishes ahead.

4. (Don't/do) take advantage of contrast in natural food colors when garnishing.

1-11. Quick Bread

As a cook, you will probably not have to do any baking during your Air Force career. There are, however, certain baking products that you will come in contact with.

216. Identify the characteristics of quick bread.

The baking products that you will come in contact with are classified as quick breads. These products use baking powder as the leavening agent. Included in the quick bread category are biscuits, muffins, and cornbread. They serve as a substitute for yeast-raised bread and should always be served hot. Some quick breads are made from doughs and some are made from batters. Doughs are flour mixtures that can be rolled and kneaded. Batters are of such a consistency so that they can be poured or dropped from a spoon.

Baking powder biscuits and shortcake biscuits are made from dough, while muffins and cornbread are made from batters. For the proper procedures in preparing quick breads, refer to AFM 146-12, *Recipes*.

Exercises:

1. The leavening agent in most quick breads is _____.

2. Quick breads serve as a substitute for _____ bread.

3. Distinguish between the rise of dough and batter.

1-12. Basic Serving Rules and Procedures

The serving rules and techniques that we will cover in this section include: placing food on the serving counters, carving individual servings of meat and poultry, and serving proper portions of food.

217. Identify certain rules to follow when placing food on the serving line.

Most people eat with their eyes. Of course they don't bite or chew with them, but they do accept or reject food items on the serving line. This is a human trait that we as food service people cannot afford to ignore. Remember, it is our job to feed people—not just offer them the food. If a person can't get his eyes to accept the food, you will have a poor chance of getting him to eat it.

There is a cardinal principle that must be observed when displaying food on the serving line—food must be arranged, not deposited. In the arrangement of food, the main idea is to get the hot food on the plate last so that it won't get cold. The order of placing food on the serving line varies slightly from meal to meal. The following lineup is considered standard: salad, bread and butter, dessert, vegetables, potatoes, meat, gravy, soup, and hot drinks.

When setting up the serving line, your shift leader or supervisor should have a detailed plan of operation and follow it through. It will be his responsibility to see that things run smoothly throughout the serving period. It is to your advantage to observe the technique that your supervisor uses in setting up the serving line, because some day you will be called upon to perform this function.

Exercises:

1. In the arrangement of food, the main idea is to get the hot food on the plate (first/last).

2. The essential principle that must be observed when displaying food on the serving line is _____ _____.

218. Identify the procedures involved in carving meat and poultry for individual servings.

The sight of a person carving a roast or ham on the serving line is more attractive than seeing the meat item already sliced and lying in an insert. Even though the slicing machine has advantages, such as speed and uniformity in slices, carving the meat on the serving line also has many advantages. The meat portions have more natural juices, all edible

portions of the meat can be served, carving the meat in front of the customer stimulates his appetite, and manpower is saved by the carver acting as a server.

Knowing the direction in which the muscles run is essential because in slicing a roast you should cut across the grain whenever possible. This shortens the fibers and makes a more desirable serving. The shorter the fiber, the easier it is to chew the meat. You, as a carver, should learn to carve neatly without scattering bits and pieces of meat all over the place. Also, care should be taken to insure that all customers receive the same amount of meat. If the carving is done correctly, the portion of the roast which has not been cut will be attractive, not jagged and rough.

The steps in carving a roast or canned ham are as follows:

- Gather all equipment necessary to carve. This includes a carving knife, carving fork, butcher steel, sheet pan, and cutting board.
- Place the roast or ham on the cutting board.
- Stick a carving fork 3 to 4 inches from edge to be cut. Hold the roast firmly so that it does not slide.
- Hold the carving knife firmly in your hand. Start at the heel of the blade on the opposite side of the roast, making long strokes the entire length of the blade toward you, making sure that you always carve across the grain.
- After each slice is carved, lift it on the blade of the knife, steadied with the fork, and place it on the plate of the consumer.

Unlike other meats, it is best to carve poultry in the kitchen before serving. When carving poultry, place the bird breast side up on the cutting board. Remove the leg next to you first. To remove it, hold the end of the leg bone in your fingers and gently pull the drumstick away from the body. Cut through the skin and meat between the leg and the body. Cut through the joint that joins the leg and the backbone. Separate the drumstick from the thigh at the joint. Slice the meat from the drumstick and thigh. Remove the wing in the same way as you did the leg. To slice the breast meat, begin at the front about halfway up the breast. Cut the slices until enough meat has been carved for the first servings or until you reach the breast bone. When one side of the bird has been carved, begin on the other side and repeat the process.

Remember, to become proficient in carving takes a lot of experience. When you have mastered the art of carving, this will add much to your prestige and reputation.

Exercises:

1. When carving meat, why should the carver cut across the grain?
2. When carving poultry, place the bird (wing/breast) side up.
3. Listed below are the steps used in carving a roast or ham. Rearrange the steps in proper sequence by placing 1,2,3,4, or 5 in the space in front of the steps.
   a. _____Stick a carving fork 3 to 4 inches from the edge to be cut.
   b. _____After the slice is carved place it on the plate of the consumer.
   c. _____Place the roast or ham on the cutting board.
   d. _____Gather all equipment necessary to carve.
   e. _____Holding the carving knife firmly in your hand, make long strokes the entire length of the blade toward you.

219. Cite certain rules to follow when serving individual portions of specific food items.

In the following paragraphs, we will discuss serving techniques as they apply to specific food items.

When serving baked, or oven-browned foods, such as au gratin vegetables, scalloped products, macaroni and cheese, baked puddings, and baked beans, you should try to serve a portion of the browned surface to each consumer if at all possible.

When serving pot pies and cobblers, serve a proportionate share of both filler and crust.

When serving creamed foods, such a fricassees or a la king type dishes, serve a proportionate amount of both the food and the cream sauce.

When serving soups, other than broth or bouillon, stir frequently during the serving process to insure that each diner gets a proportionate share of the solid ingredients and the liquid. To avoid spilling when serving soup or chowder, half-fill the serving ladle and fill the consumer's bowl only to about two-thirds of its capacity.

When serving gravy, sauce, or syrup to an individual, give him a goodly amount, but not excessive.

Don't place one food over another unless it is intended to be served that way. For example, gravies for meats are intended to be served over the meat or the potatoes; sauces for vegetables are served over the vegetables for which prepared. A good server always asks the consumer where he desires to have this gravy or sauce placed.

Don't force an item of food on a customer if he doesn't want it. Serve food portions according to menu specifications and the desires of the consumer. For example, if the menu specifies two

pork chops for each consumer and an individual desires only one, don't force the other one on him.

Exercises:

1. When serving baked or browned foods, you (should/should not) serve a portion of the browned surface to each consumer.
2. (Do/Don't) place food over another unless it is intended to be served that way.
3. (Do/Don't) force an item of food on a diner if he doesn't want it.

MODIFICATIONS

Chapters 2 and 3 of this publication has (have) been deleted in adapting this material for inclusion in the "Trial Implementation of a Model System to Provide Military Curriculum Materials for Use in Vocational and Technical Education." Deleted material involves extensive use of military forms, procedures, systems, etc. and was not considered appropriate for use in vocational and technical education.

ANSWERS FOR EXERCISES

CHAPTER 1

Reference:

200 - 1. Increments are $^1/_8$, $^1/_3$, $^3/_4$, $^1/_2$, $^3/_4$ cup.
200 - 2. Graduations are 1 teaspoon, 1 tablespoon, $^1/_2$ and $^1/_4$ teaspoon.
200 - 3. AFM 146-12.

201 - 1. b.
201 - 2. e.
201 - 3. f.
201 - 4. c.
201 - 5. d.
201 - 6. a.

202 - 1. d.
202 - 2. b.
202 - 3. e.
202 - 4. a.
202 - 5. c.

203 - 1. It is used by food service personnel in planning, preparing, cooking, and serving meals.
203 - 2. Dining hall supervisor.
203 - 3. Meal.

204 - 1. Beef.
204 - 2. Veal.
204 - 3. Pork.
204 - 4. Veal.
204 - 5. Beef.
204 - 6. Pork.

205 - 1. False.
205 - 2. True.
205 - 3. True.
205 - 4. False.

206 - 1. True.
206 - 2. False.
206 - 3. True.
206 - 4. False.

207 - 1. e.
207 - 2. c.
207 - 3. d.
207 - 4. b.
207 - 5. a.

208 - 1. b.
208 - 2. a.
208 - 3. c.
208 - 4. e.
208 - 5. d.

209 - 1. Longer.
209 - 2. So that hot air can circulate freely.
209 - 3. Increases the cooking time.
209 - 4. Type and condition of available equipment.
209 - 5. Lowers the temperature rapidly.
209 - 6. The cooking time available.

210 - 1. True.
210 - 2. False.
210 - 3. True.
210 - 4. False.
210 - 5. False.

211 - 1. True.
211 - 2. True.
211 - 3. False.
211 - 4. False.

212 - 1. Age, size.
212 - 2. Moist heat.
212 - 3. Dry heat.
212 - 4. Press the fish lightly with a fork. If the muscle fibers separate into flakes the fish is done.

213 - 1. The way it is prepared and nutrient's that have been preserved.
213 - 2. Baking, steaming, and cooking in liquid.
213 - 3. Shortest, little.
213 - 4. Excessive, prolonged heating destroys nutritive value, decreases palatability, and ruins the appearance of the vegetables.

214 - 1. Frozen.
214 - 2. To prevent discoloration.
214 - 3. Moisture, discolored.
214 - 4. Near the skin.

215 - 1. Decoration.
215 - 2. Satisfying.
215 - 3. Should.
215 - 4. Do.

216 - 1. Baking powder.
216 - 2. Yeast-raised.
216 - 3. Dough is a flour mixture that can be rolled and kneaded, whereas batter is of such a consistency that it can be poured from a spoon. Dough is used for biscuits, while batter is used for muffins and cornbread.

217 - 1. Last.
217 - 2. Food must be arranged, not deposited.

218 - 1. It shortens the fibers and makes for a more desirable serving.
218 - 2. Breast.

218 - 3. d(1), c(2), a(3), e(4), b(5).

219 - 1. Should.
219 - 2. Don't.
219 - 3. Don't.

STOP– **1. MATCH ANSWER SHEET TO THIS EXERCISE NUMBER.** **2. USE NUMBER 1 PENCIL.**

62230 02 21

EXTENSION COURSE INSTITUTE
VOLUME REVIEW EXERCISE

FOOD PREPARATION, COOKING, AND SERVING

Carefully read the following:

DO'S:

1. Check the "course," "volume," and "form" numbers from the answer sheet address tab against the "VRE answer sheet identification number" in the righthand column of the shipping list. If numbers do not match, take action to return the answer sheet and the shipping list to ECI immediately with a note of explanation.
2. Note that numerical sequence on answer sheet alternates across from column to column.
3. Use only medium sharp #1 black lead pencil for marking answer sheet.
4. Circle the correct answer in this test booklet. After you are sure of your answers, transfer them to the answer sheet. If you *have* to change an answer on the answer sheet, be sure that the erasure is complete. Use a clean eraser. But try to avoid any erasure on the answer sheet if at all possible.
5. Take action to return entire answer sheet to ECI.
6. Keep Volume Review Exercise booklet for review and reference.
7. If *mandatorily* enrolled student, process questions or comments through your unit trainer or OJT supervisor.
   If *voluntarily* enrolled student, send questions or comments to ECI on ECI Form 17.

DON'TS:

1. Don't use answer sheets other than one furnished specifically for each review exercise.
2. Don't mark on the answer sheet except to fill in marking blocks. Double marks or excessive markings which overflow marking blocks will register as errors.
3. Don't fold, spindle, staple, tape, or mutilate the answer sheet.
4. Don't use ink or any marking other than with a #1 black lead pencil.

NOTE: NUMBERED LEARNING OBJECTIVE REFERENCES ARE USED ON THE VOLUME REVIEW EXERCISE. In parenthesis after each item number on the VRE is the *Learning Objective Number* where the answer to that item can be located. When answering the items on the VRE, refer to the *Learning Objectives* indicated by these *Numbers*. The VRE results will be sent to you on a postcard which will list the *actual* VRE *items you missed*. Go to the VRE booklet and locate the *Learning Objective Numbers* for the items missed. Go to the text and carefully review the areas covered by these references. Review the entire VRE again before you take the closed-book Course Examination.

Multiple Choice

1. (200) If scales are not available to weigh ingredients, you should

   a. guess the amounts needed.
   b. ask your supervisor for suggestions.
   c. discard the recipe and use another one.
   d. measure them in graduated measures, standard cups, and spoons.

2. (200) The capacity of the standard measuring cup is

   a. 6 ounces.
   b. 8 ounces.
   c. 10 ounces.
   d. 12 ounces.

3. (200) Which of the following manuals is used as a reference for weighing and measuring?

   a. AFM 146-12.
   b. AFM 146-11.
   c. AFM 146-7.
   d. AFM 146-2.

4. (200) Sauteing consists of

   a. frying an item in deep fat.
   b. simmering an item in sauterne.
   c. cooking an item in a small amount of fat.
   d. cooking an item by exposure to direct heat.

5. (200) Which of the following statements best describes the cooking term "stock"?

   a. To cook an item in small pieces.
   b. To blend two or more ingredients.
   c. A cooked mixture of fat and flour.
   d. A liquid obtained from cooked meat and vegetables.

6. (201) The object of seasoning food is to

   a. disguise the natural flavor.
   b. enhance the natural flavor.
   c. add eye appeal to colorless food.
   d. prevent spoilage.

7. (202) Which of the following statements about herbs is true?

   a. You should season an item with herbs before the cooking period.
   b. Herb seasoning can be easily removed from cooked foods.
   c. It is better to add herbs during the last phase of the cooking period.
   d. Packaged herbs will gain strength if exposed to air.

8. (202) Paprika may be used as a

   a. substitute for nutmeg.
   b. colorful red garnish.
   c. substitute for chili powder.
   d. pastry garnish.

9. (202) What form will list the recipe a cook is to follow and the number of servings he is to prepare?

   a. AF Form 679.
   b. AF Form 287.
   c. AF Form 148.
   d. AF Form 147.

10. (203) Who is responsible for signing a Cook's Worksheet?

a. The storeroom man.
b. The staff food superintendent.
c. The dining hall supervisor.
d. The senior cook.

11. (204) Veal tends to have

a. a high percentage of connective tissues.
b. a very coarse grain.
c. the same finish as beef.
d. excessive fatty tissues.

12. (204) The typical flavor of pork is due largely to the

a. method of cooking.
b. fat imbedded in the flesh.
c. feed given the live animal.
d. development of connective tissues.

13. (205) The age of a chicken can be determined by

a. the size of the bird.
b. the flexibility of the wing.
c. applying pressure to the back bone.
d. applying pressure to the end of the breast bone.

14. (206) The two basic methods of cooking are

a. moist heat and dry heat.
b. moist heat and roasting.
c. dry heat and baking.
d. dry heat and boiling.

15. (207) The dry-heat method of cooking is best used for

a. less tender cuts of meat.
b. tender cuts of meat.
c. commercial cuts of meat.
d. standard grades of meat.

16. (207-208) Which of the following is <u>not</u> a dry-heat cooking method?

a. Broiling.
b. Roasting.
c. Braising.
d. Deep-fat frying.

17. (208) Less tender cuts of meat should be prepared by

a. using strong meat tenderizers.
b. using strong seasoning agents.
c. dry-heat cooking methods.
d. moist-heat cooking methods.

18. (208) When simmering, food is cooked in a liquid that is

a. below the boiling point.
b. at the boiling point.
c. above the boiling point.
d. at a roasting temperature.

19. (208) The moist-heat cooking method is recommended for cooking

a. steaks.
b. chops.
c. pastries.
d. most vegetables.

20. (209) Which of the following is not a factor to be considered in meat cookery?

a. The time available to prepare the product.
b. The type and grade of meat.
c. The cost of the meat.
d. The equipment used.

21. (209) The cooking time for frozen meats when compared to thawed meats is

a. longer.
b. shorter.
c. faster at higher oven temperatures.
d. the same at all oven temperatures.

22. (210) To what degree of doneness should veal be cooked?

a. Rare.
b. Medium rare.
c. Medium done.
d. Well done.

23. (211) In cooking pork, the percentage of shrinkage is determined by the

a. cooking method.
b. fat content.
c. connective tissues.
d. aging process.

24. (211) What instrument should you use to test a pork roast for doneness?

a. Knife.
b. Steel.
c. Meat fork.
d. Meat-cooking thermometer.

25. (212) Dry heat is used when cooking

a. all veal cuts.
b. young poultry.
c. all beef cuts.
d. all root vegetables.

26. (212) Overcooking fish will make it

a. more digestible.
b. more tasty.
c. tough and dry.
d. lose its oily flavor.

27. (213) The first step in the preparation of fresh vegetables is to

a. thaw them completely.
b. remove the outer skins.
c. soak them in water.
d. wash them thoroughly.

28. (213) Canned vegetables should be

a. cleaned before cooking.
b. cooked for long periods.
c. prepared in small quantities.
d. reconstituted before using.

29. (214) To keep pared fruit from discoloring, cover it with

a. lemon juice.
b. water.
c. salt.
d. baking soda.

30. (215) Which of the following is not a guide to effective garnishing?

a. Vary food garnishes.
b. Plan garnishes ahead.
c. Don't let garnishes become monotonous.
d. Don't use restraint in garnishing.

31. (216) Bakery products that use baking powder as a leavening agent are

a. hard rolls, muffins, and cornbread.
b. biscuits, muffins, and cornbread.
c. biscuits, parkerhouse rolls, and cornbread.
d. clover leaf rolls, muffins, and biscuits.

32. (218) All of the following are advantages of slicing meat on the serving line except

a. speed and uniformity.
b. the meat portions have more natural juices.
c. carving in front of the customer stimulates the appetite.
d. the carver can also act as a server.

33. (218) Which of the following tools does not belong in the carving equipment?

a. Butcher steel.
b. Butter knife.
c. Carving knife.
d. Cutting board.

34. (219) When serving creamed foods,

a. serve a portion of the browned surface to each customer.
b. stir frequently to keep the cream from sticking to the spoon.
c. make sure each customer gets a portion of the crust.
d. serve both the food and the cream sauce to each customer.

35. (219) In serving chowder, a customer's bowl should be filled to what fraction of its capacity?

a. One-half.
b. Two-thirds.
c. Three-quarters.
d. Seven-eighths.

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